FCC Test Report

FCC ID	:	**MXF-C4500MG**
Equipment	:	**C4500 MG Multi-Dwelling Unit Gateway Product**
Model No.	:	**C4500MG**
Brand Name	:	**CenturyLink**
Applicant	:	**Gemtek Technology Co., Ltd.**
Address	:	**No. 15-1 Zhonghua Road, Hsinchu Industrial Park, Hukou, Hsinchu, Taiwan, 30352.**
Standard	:	**47 CFR FCC Part 15.407**
Received Date	:	**Dec. 16, 2020**
Tested Date	:	**Dec. 21, 2020 ~ Jan. 19, 2021**

We, International Certification Corp., would like to declare that the tested sample has been evaluated and in compliance with the requirement of the above standards. The test results contained in this report refer exclusively to the product. It may be duplicated completely for legal use with the approval of the applicant. It shall not be reproduced except in full without the written approval of our laboratory.

Reviewed by: **Approved by:**

Along Chen / Assistant Manager **Gary Chang / Manager**

Testing Laboratory 2732

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Release Record

Report No.	Version	Description	Issued Date
FR0D1601AN	Rev. 01	Initial issue	Feb. 22, 2021

Summary of Test Results

FCC Rules	Test Items	Measured	Result
15.207	Conducted Emissions	[dBuV]: 0.474MHz 37.68 (Margin -8.77dB) - AV	Pass
15.407(b) 15.209	Radiated Emissions	[dBuV/m at 3m]: 5150.00MHz 53.55 (Margin -0.45dB) - AV	Pass
15.407(a)	Emission Bandwidth	Meet the requirement of limit	Pass
15.407(e)	6dB bandwidth	Meet the requirement of limit	Pass
15.407(a)	RF Output Power	Max Power [dBm]: ***Non-beamforming mode*** 5150~5250MHz: 29.13 5725~5850MHz: 29.61 ***Beamforming mode*** 5150~5250MHz: 28.71 5725~5850MHz: 28.57	Pass
15.407(a)	Peak Power Spectral Density	Meet the requirement of limit	Pass
15.407(g)	Frequency Stability	Meet the requirement of limit	Pass
15.203	Antenna Requirement	Meet the requirement of limit	Pass

Declaration of Conformity:
The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.
Comments and Explanations:
The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

1 General Description

1.1 Information

1.1.1 Specification of the Equipment under Test (EUT)

RF General Information					
Frequency Range (MHz)	**IEEE Std. 802.11**	**Ch. Freq. (MHz)**	**Channel Number**	**Transmit Chains (N_{TX})**	**Data Rate / MCS**
5150-5250 5725-5850	a	5180-5240 5745-5825	36-48 [4] 149-165 [5]	2	6-54 Mbps
5150-5250 5725-5850	n (HT20)	5180-5240 5745-5825	36-48 [4] 149-165 [5]	2	MCS 0-15
5150-5250 5725-5850	n (HT40)	5190-5230 5755-5795	38-46 [2] 151-159 [2]	2	MCS 0-15
5150-5250 5725-5850	ac (VHT20)	5180-5240 5745-5825	36-48 [4] 149-165 [5]	2	MCS 0-9
5150-5250 5725-5850	ac (VHT40)	5190-5230 5755-5795	38-46 [2] 151-159 [2]	2	MCS 0-9
5150-5250 5725-5850	ac (VHT80)	5210 5775	42 [1] 155 [1]	2	MCS 0-9
5150-5250 5725-5850	ax (HE20)	5180-5240 5745-5825	36-48 [4] 149-165 [5]	2	MCS 0-11
5150-5250 5725-5850	ax (HE40)	5190-5230 5755-5795	38-46 [2] 151-159 [2]	2	MCS 0-11
5150-5250 5725-5850	ax (HE80)	5210 5775	42 [1] 155 [1]	2	MCS 0-11
Note 1: The device supports OFDM/OFDMA- BPSK, QPSK, 16QAM, 64QAM, 256QAM and 1024QAM modulation. Note 2: 802.11an/ac/ax supports beamforming function.					

1.1.2 Antenna Details

Ant. No.	Model	Type	Connector	Operating Frequencies (MHz) / Antenna Gain (dBi)		
				2400~2483.5	5150~5250	5725~5850
1	2.4G -1	PIFA	UFL	3.4	--	--
2	2.4G -2	PIFA	UFL	2.3	--	--
3	5G - 1	Dipole	UFL	--	3.8	4.5
4	5G - 2	Dipole	UFL	--	4	4.1

1.1.3 Power Supply Type of Equipment under Test (EUT)

Power Supply Type	12Vdc from adapter

1.1.4 Accessories

Accessories		
No.	**Equipment**	**Description**
1	AC adapter	Brand: LEI Model: MU36B1120300-A1 Power Rating: I/P: 100-240Vac, 50/60Hz, 1.0A O/P: 12Vdc, 3A Power Line: 1.7m non-shielded without core
2	AC adapter	Brand: MOSO Model: MS-V3000R120-036H0-US Power Rating: I/P: 100-240Vac, 50/60Hz, 1.0A max. O/P: 12Vdc, 3A Power Line: 1.8m non-shielded without core
3	RJ45 (WAN) (White)	1.7m non-shielded without core
4	RJ 45 (LAN) (Yellow)	1.7m non-shielded without core

1.1.5 Channel List

802.11a / n HT20 / ac VHT20 / ax HE20		802.11n HT40 / ac VHT40 / ax HE40	
Channel	**Frequency(MHz)**	**Channel**	**Frequency(MHz)**
36	5180	38	5190
40	5200	46	5230
44	5220	151	5755
48	5240	159	5795
149	5745	**802.11ac VHT80 / ax HE80**	
153	5765	42	5210
157	5785	155	5775
161	5805	-	-
165	5825	-	-

1.1.6 Test Tool and Duty Cycle

Test Tool	Intel DUT GUI, V610.26		
Duty Cycle and Duty Factor	**Mode**	**Duty Cycle (%)**	**Duty Factor (dB)**
	11a	100.00%	0.00
	ac (VHT20)	100.00%	0.00
	ac (VHT40)	100.00%	0.00
	ax (HE20)	100.00%	0.00
	ax (HE40)	100.00%	0.00
	ax (HE80)	100.00%	0.00

1.1.7 Power Index of Test Tool

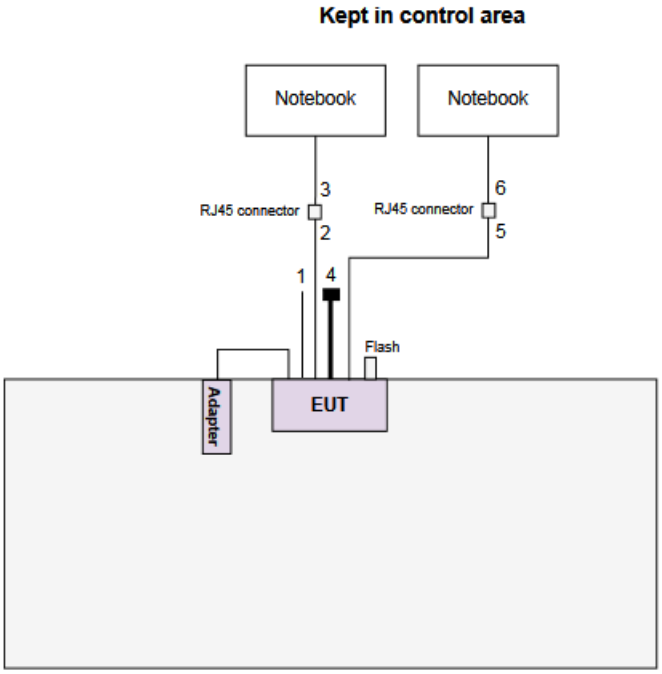
Modulation Mode	Test Frequency (MHz)	Power Index	
		Non- beamforming	Beamforming
11a	5180	24	---
11a	5200	26.5	---
11a	5240	26	---
11a	5745	27	---
11a	5785	27.5	---
11a	5825	27.5	---
VHT20	5180	22.5	22.5
VHT20	5200	26.5	26
VHT20	5240	26	26
VHT20	5745	27	26
VHT20	5785	27.5	26.5
VHT20	5825	27.5	26.5
VHT40	5190	20.5	20.5
VHT40	5230	25.5	25.5
VHT40	5755	27.5	26.5
VHT40	5795	27.5	26.5
VHT80	5210	19.5	19.5
VHT80	5775	23	23
ax (HE20)	5180	22.5	22.5
ax (HE20)	5200	26.5	26
ax (HE20)	5240	26	26
ax (HE20)	5745	27	26
ax (HE20)	5785	27.5	26.5
ax (HE20)	5825	27.5	26.5
ax (HE40)	5190	20.5	20.5
ax (HE40)	5230	25.5	25.5
ax (HE40)	5755	27.5	26.5
ax (HE40)	5795	27.5	26.5
ax (HE80)	5210	19.5	19.5
ax (HE80)	5775	23	23

1.2 Local Support Equipment List

Support Equipment List					
No.	**Equipment**	**Brand**	**Model**	**FCC ID**	**Remarks**
1	Notebook	DELL	Latitude E5470	DoC	---
2	Notebook	DELL	Latitude E5470	DoC	---
3	USB 3.0 Flash	Transcend	JetFlash 700	---	---

1.3 Test Setup Chart

Test Setup Diagram



No.	Signal cable / Length (m)
1	Fiber, 10m non-shielded.
2	RJ45, 1.7m non-shielded.
3	RJ45, 10m non-shielded.
4	RJ45, 1m (x3) non-shielded with load.
5	RJ45, 1.7m non-shielded.
6	RJ45, 10m non-shielded.

1.4 The Equipment List

Test Item	Conducted Emission				
Test Site	Conduction room 1 / (CO01-WS)				
Instrument	**Brand**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Receiver	R&S	ESR3	101657	Feb. 14, 2020	Feb. 13, 2021
LISN	R&S	ENV216	101579	Mar. 12, 2020	Mar. 11, 2021
RF Cable-CON	Woken	CFD200-NL	CFD200-NL-001	Oct. 21, 2020	Oct. 20, 2021
Measurement Software	AUDIX	e3	6.120210k	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

Test Item	Radiated Emission				
Test Site	966 chamber1 / (03CH01-WS)				
Instrument	**Brand**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Spectrum Analyzer	R&S	FSV40	101498	Dec. 04, 2020	Dec. 03, 2021
Receiver	R&S	ESR3	101657	Feb. 14, 2020	Feb. 13, 2021
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-522	Jul. 10, 2020	Jul. 09, 2021
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1096	Dec. 11, 2020	Dec. 10, 2021
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170517	Nov. 06, 2020	Nov. 05, 2021
Loop Antenna	R&S	HFH2-Z2	100330	Nov. 17, 2020	Nov. 16, 2021
Loop Antenna Cable	KOAX KABEL	101354-BW	101354-BW	Oct. 06, 2020	Oct. 05, 2021
Preamplifier	EMC	EMC02325	980225	Jul. 03, 2020	Jul. 02, 2021
Preamplifier	Agilent	83017A	MY39501308	Sep. 26, 2020	Sep. 25, 2021
Preamplifier	EMC	EMC184045B	980192	Jul. 21, 2020	Jul. 20, 2021
RF Cable	EMC	EMC104-SM-SM-8000	181106	Oct. 06, 2020	Oct. 05, 2021
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16019/4	Oct. 06, 2020	Oct. 05, 2021
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16014/4	Oct. 06, 2020	Oct. 05, 2021
LF cable 1M	EMC	EMCCFD400-NM-NM-1000	160502	Oct. 06, 2020	Oct. 05, 2021
LF cable 3M	Woken	CFD400NL-LW	CFD400NL-001	Oct. 06, 2020	Oct. 05, 2021
LF cable 11M	EMC	EMCCFD400-NW-NW-11000	200801	Oct. 06, 2020	Oct. 05, 2021
Measurement Software	AUDIX	e3	6.120210g	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

Test Item	RF Conducted				
Test Site	(TH01-WS)				
Instrument	**Brand**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Spectrum Analyzer	R&S	FSV40	101063	Apr. 30, 2020	Apr. 29, 2021
TEMP&HUMIDITY CHAMBER	GIANT FORCE	GCT-225-40-SP-SD	MAF1212-002	May 06, 2020	May 05, 2021
Power Meter	Anritsu	ML2495A	1241002	Nov. 04, 2020	Nov. 03, 2021
Power Sensor	Anritsu	MA2411B	1207366	Nov. 04, 2020	Nov. 03, 2021
AC POWER SOURCE	APC	AFC-500W	F312060012	Dec. 04, 2020	Dec. 03, 2021
Measurement Software	--	SENSE-15407_NII	V5.10.7	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

1.5 Test Standards

47 CFR FCC Part 15.407
ANSI C63.10-2013

1.6 Reference Guidance

FCC KDB 412172 D01 Determining ERP and EIRP v01r01
FCC KDB 662911 D01 Multiple Transmitter Output v02r01
FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01

1.7 Deviation from Test Standard and Measurement Procedure

None

1.8 Measurement Uncertainty

The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2)

Measurement Uncertainty	
Parameters	**Uncertainty**
Bandwidth	±34.130 Hz
Conducted power	±0.808 dB
Frequency error	$\pm 1 \times 10^{-9}$
Power density	±0.583 dB
Conducted emission	±2.715 dB
AC conducted emission	±2.92 dB
Radiated emission ≤ 1GHz	±3.41 dB
Radiated emission > 1GHz	±4.59 dB
Time	±0.1%
Temperature	±0.4 °C

2 Test Configuration

2.1 Testing Facility

Test Laboratory	International Certification Corp.
Test Site	CO01-WS, 03CH01-WS, TH01-WS
Address of Test Site	No. 3-1, Lane 6, Wen San 3rd St., Kwei Shan District, Tao Yuan City 333, Taiwan, R.O.C.

- FCC Designation No.: TW2732
- FCC site registration No.: 181692
- ISED#: 10807A
- CAB identifier: TW2732

2.2 The Worst Test Modes and Channel Details

Frequency band 5150~5250 MHz				
Test item	**Modulation Mode**	**Test Frequency (MHz)**	**Data Rate (Mbps) / MCS**	**Test Configuration**
Conducted Emissions	11a	5200	6 Mbps	Non-beamforming
Radiated Emissions ≤1GHz	11a	5200	6 Mbps	Non-beamforming
RF Output Power	11a	5180 / 5200 / 5240	6 Mbps	Non-beamforming
	VHT20	5180 / 5200 / 5240	MCS 0	
	VHT40	5190 / 5230	MCS 0	
	VHT80	5210	MCS 0	
	ax HE20	5180 / 5200 / 5240	MCS 0	
	ax HE40	5190 / 5230	MCS 0	
	ax HE80	5210	MCS 0	
RF Output Power	VHT20	5180 / 5200 / 5240	MCS 0	Beamforming
	VHT40	5190 / 5230	MCS 0	
	VHT80	5210	MCS 0	
	ax HE20	5180 / 5200 / 5240	MCS 0	
	ax HE40	5190 / 5230	MCS 0	
	ax HE80	5210	MCS 0	
Radiated Emissions >1GHz Emission Bandwidth Peak Power Spectral Density	11a	5180 / 5200 / 5240	6 Mbps	Non-beamforming
	ax HE20	5180 / 5200 / 5240	MCS 0	
	ax HE40	5190 / 5230	MCS 0	
	ax HE80	5210	MCS 0	
Frequency Stability	Un-modulation	5200	---	Non-beamforming

NOTE:

1. The EUT was pretested with 3 orientations placed on the table for the radiated emission measurement – X, Y, and Z-plane. The **Y-plane** results were found as the worst case and were shown in this report.
2. Two adapters (LEI and MOSO) had been covered during the pretest and found that the worst adapter is **MOSO adapter** for conducted emissions test and **LEI adapter** for radiated emissions test.
3. Non-beamforming and beamforming mode had been covered during the pretest. The worst mode is Non-beamforming thus Non-beamforming is tested for all test items.

Frequency band 5725-5850 MHz				
Test item	**Modulation Mode**	**Test Frequency (MHz)**	**Data Rate (Mbps) / MCS**	**Test Configuration**
Conducted Emissions	ax HE20	5745	MCS 0	Non-beamforming
Radiated Emissions ≤1GHz	ax HE20	5745	MCS 0	Non-beamforming
RF Output Power	11a	5745 / 5785 / 5825	6 Mbps	Non-beamforming
	VHT20	5745 / 5785 / 5825	MCS 0	
	VHT40	5775 / 5795	MCS 0	
	VHT80	5775	MCS 0	
	ax HE20	5745 / 5785 / 5825	MCS 0	
	ax HE40	5755 / 5795	MCS 0	
	ax HE80	5775	MCS 0	
RF Output Power	VHT20	5745 / 5785 / 5825	MCS 0	Beamforming
	VHT40	5775 / 5795	MCS 0	
	VHT80	5775	MCS 0	
	ax HE20	5745 / 5785 / 5825	MCS 0	
	ax HE40	5755 / 5795	MCS 0	
	ax HE80	5775	MCS 0	
Radiated Emissions >1GHz Emission Bandwidth 6dB bandwidth Peak Power Spectral Density	11a	5745 / 5785 / 5825	6 Mbps	Non-beamforming
	ax HE20	5745 / 5785 / 5825	MCS 0	
	ax HE40	5755 / 5795	MCS 0	
	ax HE80	5775	MCS 0	
Frequency Stability	Un-modulation	5785	---	Non-beamforming

NOTE:

1. The EUT was pretested with 3 orientations placed on the table for the radiated emission measurement – X, Y, and Z-plane. The **Y-plane** results were found as the worst case and were shown in this report.
2. Two adapters (LEI and MOSO) had been covered during the pretest and found that the worst adapter is **MOSO adapter** for conducted emissions test and **LEI adapter** for radiated emissions test.
3. Non-beamforming and beamforming mode had been covered during the pretest. The worst mode is Non-beamforming thus Non-beamforming is tested for all test items.

3 Transmitter Test Results

3.1 Conducted Emissions

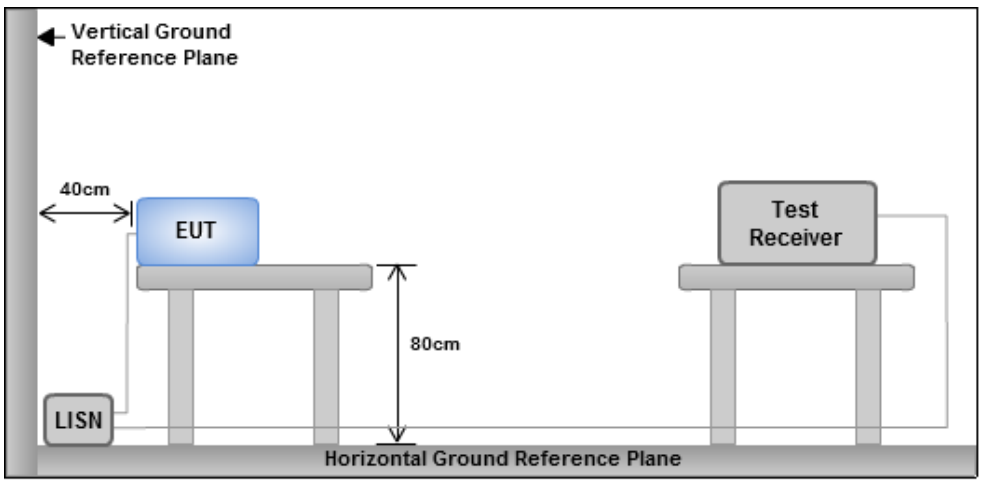
3.1.1 Limit of Conducted Emissions

Conducted Emissions Limit		
Frequency Emission (MHz)	**Quasi-Peak**	**Average**
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50
Note 1: * Decreases with the logarithm of the frequency.		

3.1.2 Test Procedures

1. The device is placed on a test table, raised 80 cm above the reference ground plane. The vertical conducting plane is located 40 cm to the rear of the device.
2. The device is connected to line impedance stabilization network (LISN) and other accessories are connected to other LISN. Measured levels of AC power line conducted emission are across the 50 Ω LISN port.
3. AC conducted emission measurements is made over frequency range from 150 kHz to 30 MHz.
4. This measurement was performed with AC 120V/60Hz

3.1.3 Test Setup



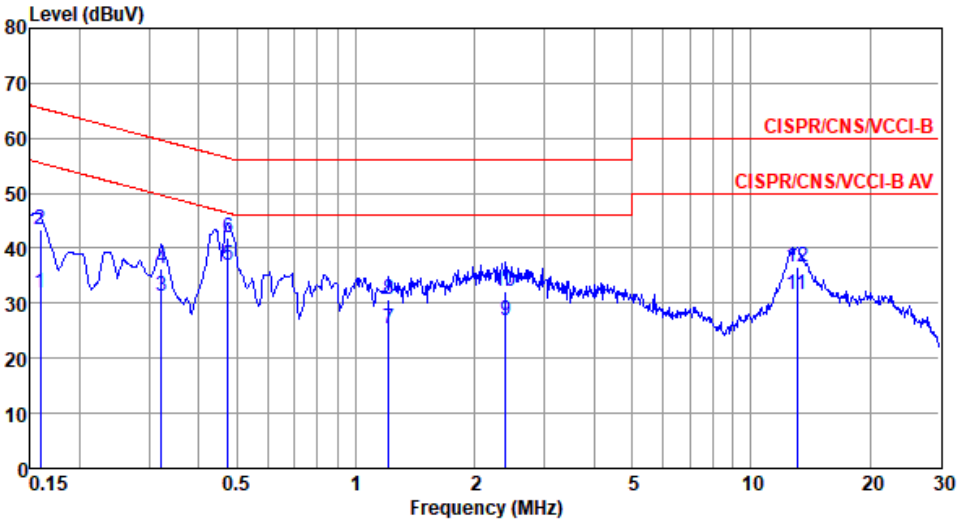
Note: 1. Support units were connected to second LISN.

2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes

3.1.4 Test Result of Conducted Emissions

Modulation	11a	Test Freq. (MHz)	5200
Power Phase	Line		

Test by : Alex Tsai Temperature: 20°C Humidity: 61%

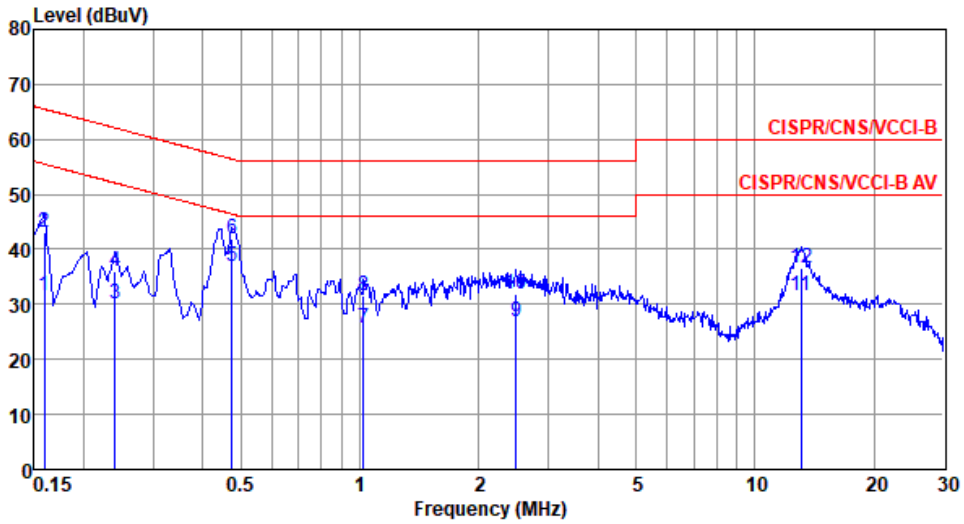


	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Cable loss	Remark
	MHz	dBuV	dBuV	dB	dBuV	dB	dB	
1	0.159	31.75	55.52	-23.77	21.89	9.81	0.05	Average
2	0.159	43.32	65.52	-22.20	33.46	9.81	0.05	QP
3	0.322	31.41	49.66	-18.25	21.48	9.86	0.07	Average
4	0.322	36.33	59.66	-23.33	26.40	9.86	0.07	QP
5*	0.474	36.99	46.45	-9.46	27.00	9.90	0.09	Average
6	0.474	42.05	56.45	-14.40	32.06	9.90	0.09	QP
7	1.210	25.38	46.00	-20.62	15.27	9.97	0.14	Average
8	1.210	30.80	56.00	-25.20	20.69	9.97	0.14	QP
9	2.396	26.96	46.00	-19.04	16.76	9.99	0.21	Average
10	2.396	32.13	56.00	-23.87	21.93	9.99	0.21	QP
11	13.057	31.69	50.00	-18.31	21.00	10.16	0.53	Average
12	13.057	36.55	60.00	-23.45	25.86	10.16	0.53	QP

Note 1: Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB).
2: Over Limit (dB) = Level (dBuV) – Limit Line (dBuV).

Modulation	11a	Test Freq. (MHz)	5200
Power Phase	Neutral		

Test by : Alex Tsai Temperature: 20°C Humidity: 61%

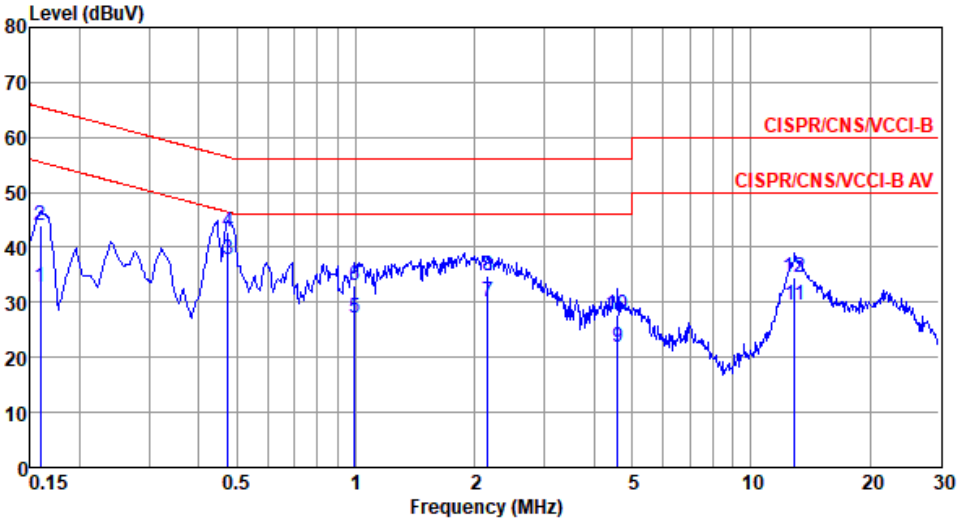


	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Cable loss	Remark
	MHz	dBuV	dBuV	dB	dBuV	dB	dB	
1	0.159	31.72	55.52	-23.80	21.88	9.79	0.05	Average
2	0.159	43.18	65.52	-22.34	33.34	9.79	0.05	QP
3	0.240	30.17	52.08	-21.91	20.29	9.81	0.07	Average
4	0.240	35.98	62.08	-26.10	26.10	9.81	0.07	QP
5*	0.474	36.98	46.45	-9.47	27.06	9.83	0.09	Average
6	0.474	41.98	56.45	-14.47	32.06	9.83	0.09	QP
7	1.021	25.61	46.00	-20.39	15.64	9.85	0.12	Average
8	1.021	31.68	56.00	-24.32	21.71	9.85	0.12	QP
9	2.487	26.84	46.00	-19.16	16.71	9.92	0.21	Average
10	2.487	31.81	56.00	-24.19	21.68	9.92	0.21	QP
11	13.057	31.71	50.00	-18.29	21.05	10.13	0.53	Average
12	13.057	36.52	60.00	-23.48	25.86	10.13	0.53	QP

Note 1: Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB).
2: Over Limit (dB) = Level (dBuV) – Limit Line (dBuV).

Modulation	ax (HE20)	Test Freq. (MHz)	5745
Power Phase	Line		

Test by : Alex Tsai Temperature: 20°C Humidity: 61%

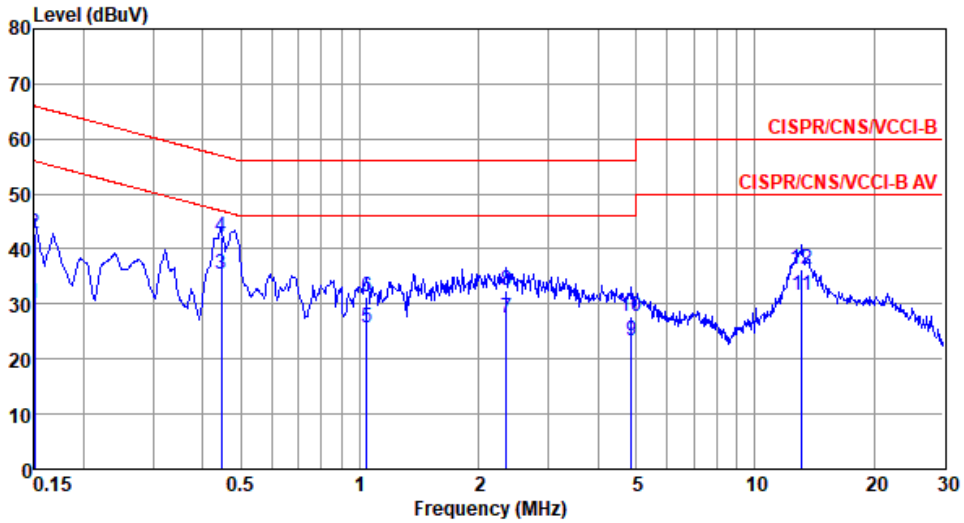


	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Cable loss	Remark
	MHz	dBuV	dBuV	dB	dBuV	dB	dB	
1	0.159	32.76	55.52	-22.76	22.90	9.81	0.05	Average
2	0.159	43.96	65.52	-21.56	34.10	9.81	0.05	QP
3*	0.474	37.68	46.45	-8.77	27.69	9.90	0.09	Average
4	0.474	42.82	56.45	-13.63	32.83	9.90	0.09	QP
5	0.994	27.11	46.00	-18.89	17.02	9.97	0.12	Average
6	0.994	33.14	56.00	-22.86	23.05	9.97	0.12	QP
7	2.155	30.02	46.00	-15.98	19.85	9.98	0.19	Average
8	2.155	34.85	56.00	-21.15	24.68	9.98	0.19	QP
9	4.598	21.90	46.00	-24.10	11.56	10.03	0.31	Average
10	4.598	27.83	56.00	-28.17	17.49	10.03	0.31	QP
11	12.920	29.57	50.00	-20.43	18.89	10.15	0.53	Average
12	12.920	34.67	60.00	-25.33	23.99	10.15	0.53	QP

Note 1: Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB).
2: Over Limit (dB) = Level (dBuV) – Limit Line (dBuV).

Modulation	ax (HE20)	Test Freq. (MHz)	5745
Power Phase	Neutral		

Test by : Alex Tsai Temperature: 20°C Humidity: 61%



	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Cable loss	Remark
	MHz	dBuV	dBuV	dB	dBuV	dB	dB	
1	0.150	30.08	56.00	-25.92	20.24	9.79	0.05	Average
2	0.150	42.68	66.00	-23.32	32.84	9.79	0.05	QP
3*	0.447	35.49	46.93	-11.44	25.58	9.83	0.08	Average
4	0.447	42.23	56.93	-14.70	32.32	9.83	0.08	QP
5	1.043	25.64	46.00	-20.36	15.67	9.85	0.12	Average
6	1.043	31.27	56.00	-24.73	21.30	9.85	0.12	QP
7	2.346	27.37	46.00	-18.63	17.24	9.92	0.21	Average
8	2.346	32.62	56.00	-23.38	22.49	9.92	0.21	QP
9	4.874	23.20	46.00	-22.80	12.93	9.96	0.31	Average
10	4.874	27.89	56.00	-28.11	17.62	9.96	0.31	QP
11	13.127	31.46	50.00	-18.54	20.80	10.13	0.53	Average
12	13.127	36.44	60.00	-23.56	25.78	10.13	0.53	QP

Note 1: Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB).
2: Over Limit (dB) = Level (dBuV) – Limit Line (dBuV).

3.2 Emission Bandwidth

3.2.1 Limit of Emission Bandwidth

Within the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

3.2.2 Test Procedures

26dB Bandwidth

1. Set RBW = approximately 1% of the emission bandwidth.
2. Set the VBW > RBW, Detector = Peak.
3. Trace mode = max hold.
4. Measure the maximum width of the emission that is 26 dB down from the peak of the emission.

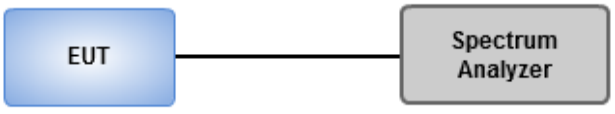
Occupied Bandwidth

1. Set RBW = 1 % to 5 % of the OBW.
2. Set VBW ≥ 3 RBW.
3. Sample detection and single sweep mode shall be used.
4. Use the 99 % power bandwidth function of the instrument.

6dB Bandwidth

1. Set RBW = 100kHz, VBW = 300kHz.
2. Detector = Peak,Trace mode = max hold.
3. Allow the trace to stabilize.
4. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

3.2.3 Test Setup



3.2.4 Test Result of Emission Bandwidth

Ambient Condition	20-24°C / 64-66%	Tested By	Aska Huang

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
5.15-5.25GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_2TX	37.319M	19.45M	19M4D1D	24.348M	16.729M
802.11ax HEW20_Nss1,(MCS0)_2TX	33.188M	19.392M	19M4D1D	22.971M	19.045M
802.11ax HEW40_Nss1,(MCS0)_2TX	63.913M	38.321M	38M3D1D	42.464M	37.858M
802.11ax HEW80_Nss1,(MCS0)_2TX	84.348M	77.337M	77M3D1D	82.899M	77.337M
5.725-5.85GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_2TX	16.522M	18.813M	18M8D1D	16.522M	17.077M
802.11ax HEW20_Nss1,(MCS0)_2TX	19.203M	20.376M	20M4D1D	19.058M	19.045M
802.11ax HEW40_Nss1,(MCS0)_2TX	38.261M	39.711M	39M7D1D	38.116M	38.553M
802.11ax HEW80_Nss1,(MCS0)_2TX	78.261M	77.337M	77M3D1D	78.261M	77.337M

Max-N dB = Maximum 6dB down bandwidth for 5.725-5.85GHz band / Maximum 26dB down bandwidth for other band;
Max-OBW = Maximum 99% occupied bandwidth;
Min-N dB = Minimum 6dB down bandwidth for 5.725-5.85GHz band / Maximum 26dB down bandwidth for other band;
Min-OBW = Minimum 99% occupied bandwidth;

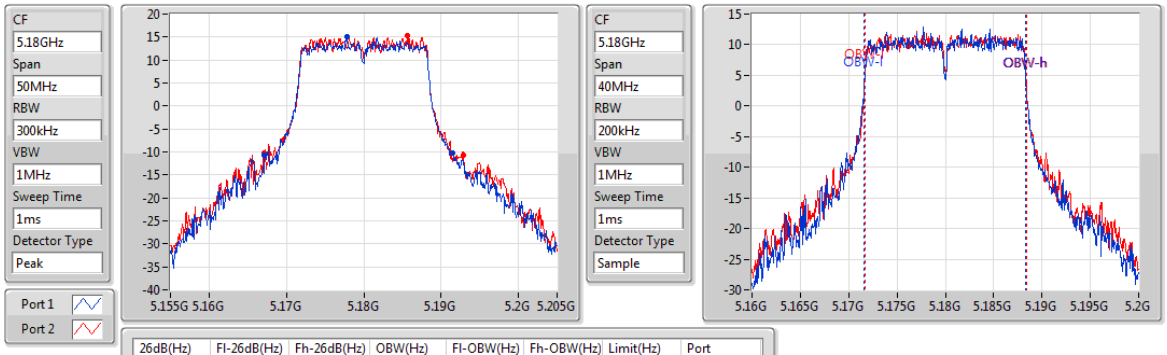
Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)	Port 2-N dB (Hz)	Port 2-OBW (Hz)
802.11a_Nss1,(6Mbps)_2TX	-	-	-	-	-	-
5180MHz	Pass	Inf	24.348M	16.729M	25.725M	16.729M
5200MHz	Pass	Inf	34.638M	18.119M	37.319M	19.45M
5240MHz	Pass	Inf	34.275M	17.308M	35.145M	18.003M
5745MHz	Pass	500k	16.522M	18.003M	16.522M	18.813M
5785MHz	Pass	500k	16.522M	17.366M	16.522M	18.524M
5825MHz	Pass	500k	16.522M	17.077M	16.522M	18.755M
802.11ax HEW20_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5180MHz	Pass	Inf	23.261M	19.161M	22.971M	19.045M
5200MHz	Pass	Inf	30.217M	19.276M	33.188M	19.392M
5240MHz	Pass	Inf	29.42M	19.334M	28.116M	19.392M
5745MHz	Pass	500k	19.13M	19.508M	19.203M	19.45M
5785MHz	Pass	500k	19.058M	19.045M	19.058M	19.103M
5825MHz	Pass	500k	19.058M	19.161M	19.13M	20.376M
802.11ax HEW40_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5190MHz	Pass	Inf	44.928M	38.09M	42.464M	37.858M
5230MHz	Pass	Inf	63.913M	38.321M	63.333M	37.974M
5755MHz	Pass	500k	38.116M	38.553M	38.116M	39.016M
5795MHz	Pass	500k	38.261M	39.711M	38.116M	38.669M
802.11ax HEW80_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5210MHz	Pass	Inf	82.899M	77.337M	84.348M	77.337M
5775MHz	Pass	500k	78.261M	77.337M	78.261M	77.337M

Port X-N dB = Port **X** 6dB down bandwidth for 5.725-5.85GHz band / 26dB down bandwidth for other band
Port X-OBW = Port **X** 99% occupied bandwidth;

802.11a_Nss1,(6Mbps)_2TX **EBW**

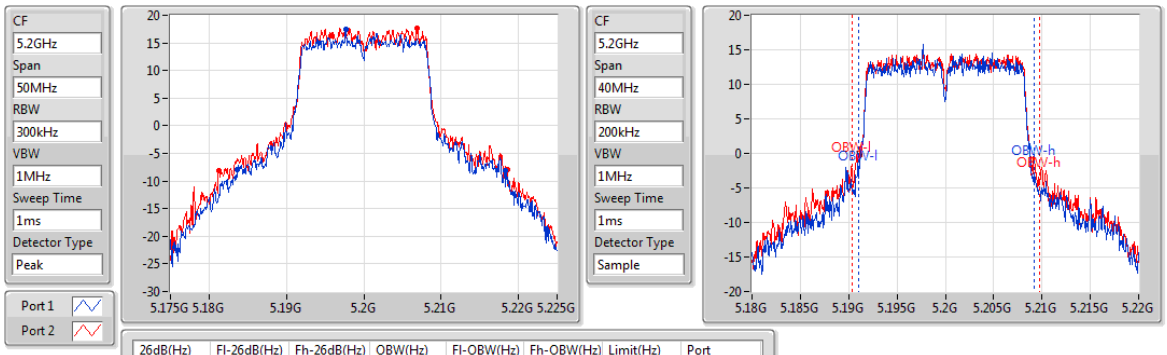
5180MHz



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
24.348M	5.167174G	5.191522G	16.729M	5.171606G	5.188336G	Inf	1
25.725M	5.167174G	5.192899G	16.729M	5.171664G	5.188394G	Inf	2

802.11a_Nss1,(6Mbps)_2TX **EBW**

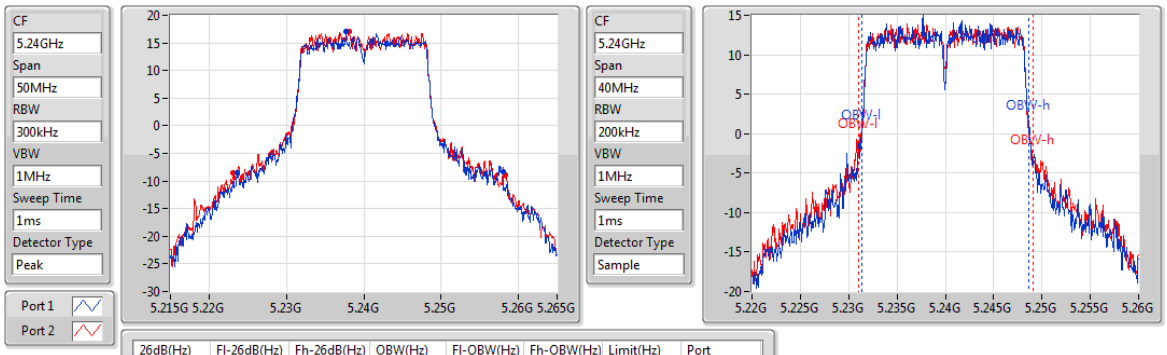
5200MHz



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
34.638M	5.183623G	5.218261G	18.119M	5.191027G	5.209146G	Inf	1
37.319M	5.181232G	5.218551G	19.45M	5.190333G	5.209783G	Inf	2

802.11a_Nss1,(6Mbps)_2TX **EBW**

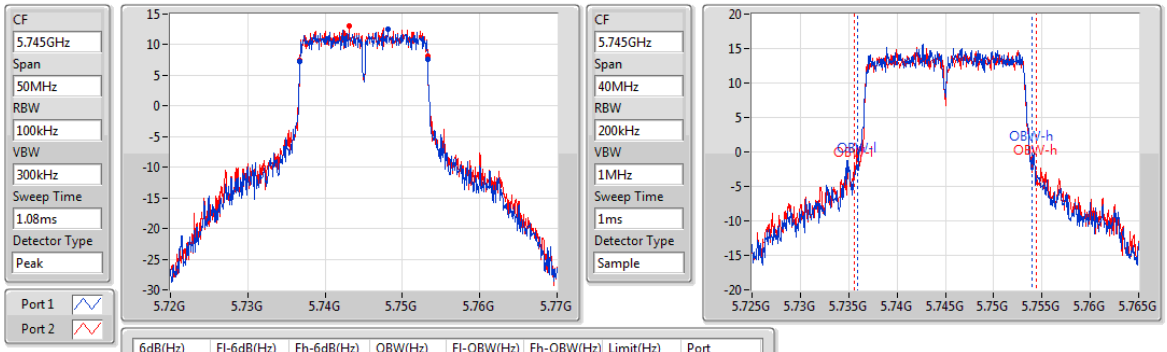
5240MHz



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
34.275M	5.223696G	5.257971G	17.308M	5.231375G	5.248683G	Inf	1
35.145M	5.223116G	5.258261G	18.003M	5.231027G	5.24903G	Inf	2

802.11a_Nss1,(6Mbps)_2TX **EBW**

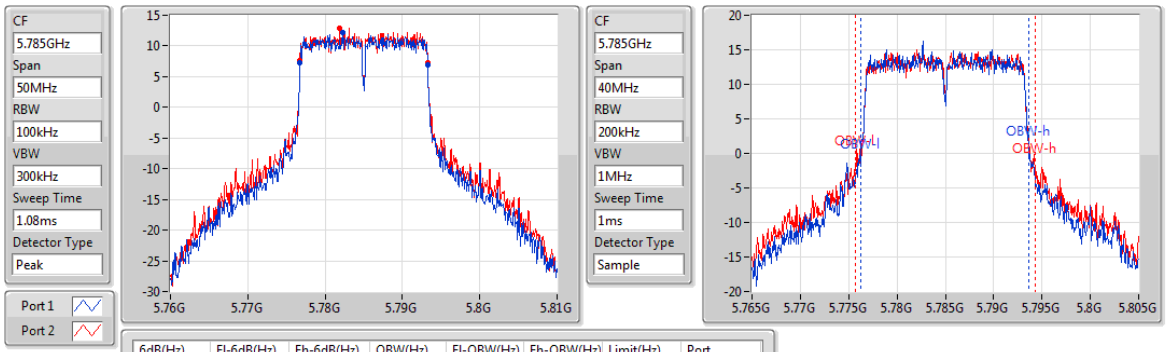
5745MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
16.522M	5.736739G	5.753261G	18.003M	5.73597G	5.753973G	500k	1
16.522M	5.736739G	5.753261G	18.813M	5.735622G	5.754436G	500k	2

802.11a_Nss1,(6Mbps)_2TX **EBW**

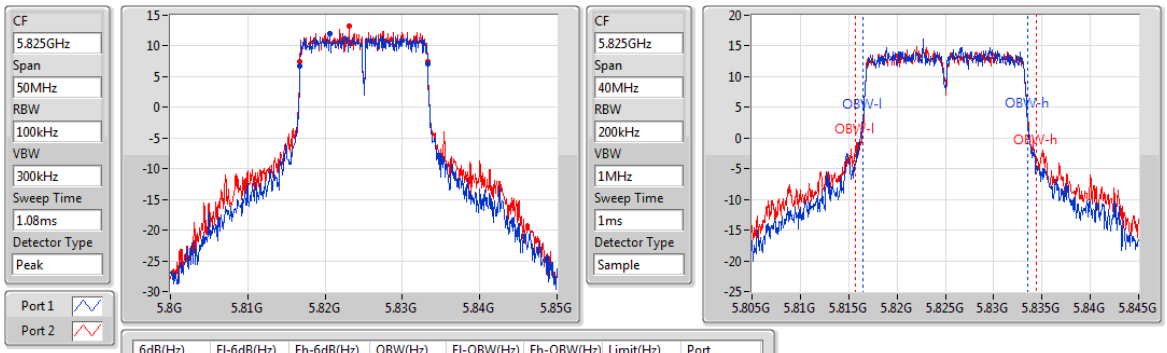
5785MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
16.522M	5.776739G	5.793261G	17.366M	5.776259G	5.793625G	500k	1
16.522M	5.776739G	5.793261G	18.524M	5.775738G	5.794262G	500k	2

802.11a_Nss1,(6Mbps)_2TX **EBW**

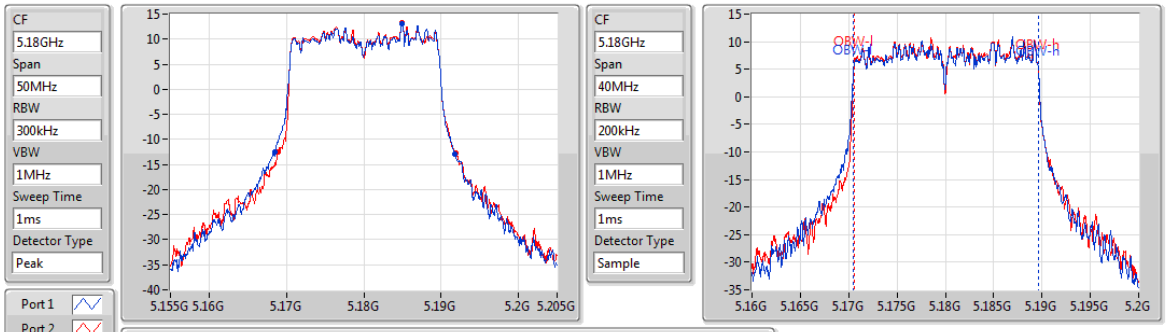
5825MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
16.522M	5.816739G	5.833261G	17.077M	5.816433G	5.833509G	500k	1
16.522M	5.816739G	5.833261G	18.755M	5.81568G	5.834436G	500k	2

802.11ax HEW20_Nss1,(MCS0)_2TX **EBW**

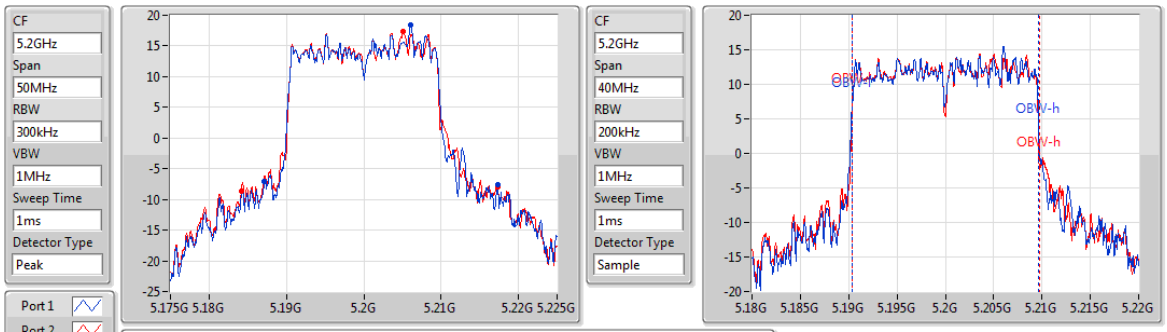
5180MHz



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
23.261M	5.168551G	5.191812G	19.161M	5.170507G	5.189667G	Inf	1
22.971M	5.168913G	5.191884G	19.045M	5.170564G	5.189609G	Inf	2

802.11ax HEW20_Nss1,(MCS0)_2TX **EBW**

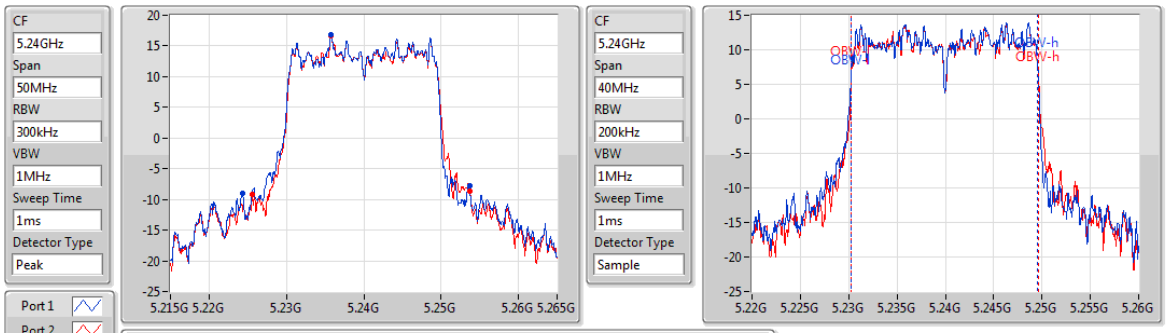
5200MHz



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
30.217M	5.187174G	5.217391G	19.276M	5.190391G	5.209667G	Inf	1
33.188M	5.18413G	5.217319G	19.392M	5.190391G	5.209783G	Inf	2

802.11ax HEW20_Nss1,(MCS0)_2TX **EBW**

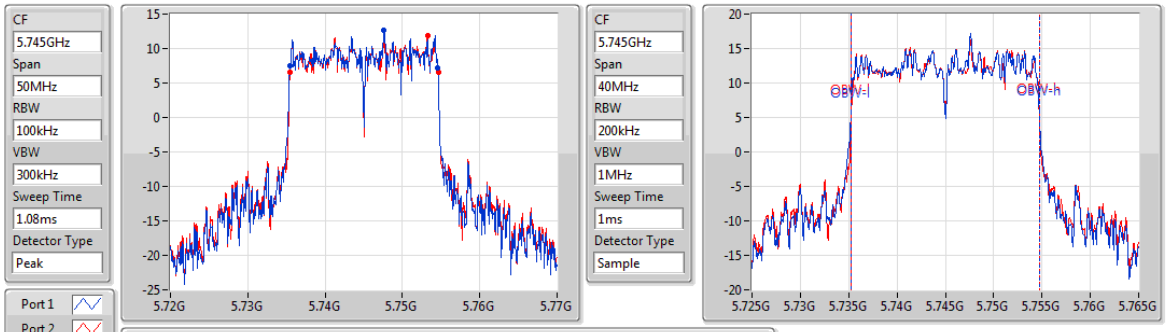
5240MHz



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
29.42M	5.224275G	5.253696G	19.334M	5.230217G	5.249551G	Inf	1
28.116M	5.225652G	5.253768G	19.392M	5.230275G	5.249667G	Inf	2

802.11ax HEW20_Nss1,(MCS0)_2TX **EBW**

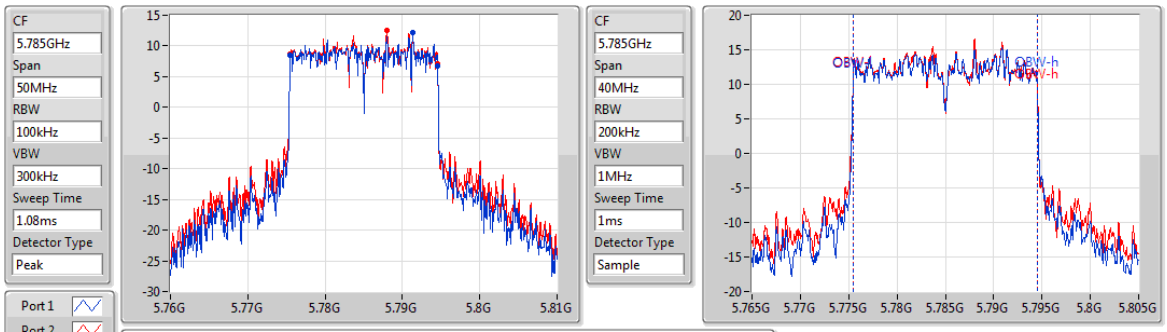
5745MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
19.13M	5.735435G	5.754565G	19.508M	5.735217G	5.754725G	500k	1
19.203M	5.735435G	5.754638G	19.45M	5.735275G	5.754725G	500k	2

802.11ax HEW20_Nss1,(MCS0)_2TX **EBW**

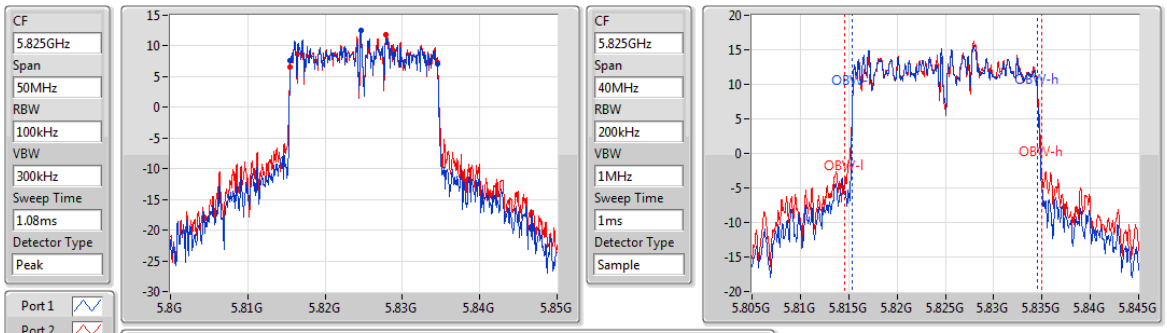
5785MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
19.058M	5.775507G	5.794565G	19.045M	5.775449G	5.794493G	500k	1
19.058M	5.775507G	5.794565G	19.103M	5.775449G	5.794551G	500k	2

802.11ax HEW20_Nss1,(MCS0)_2TX **EBW**

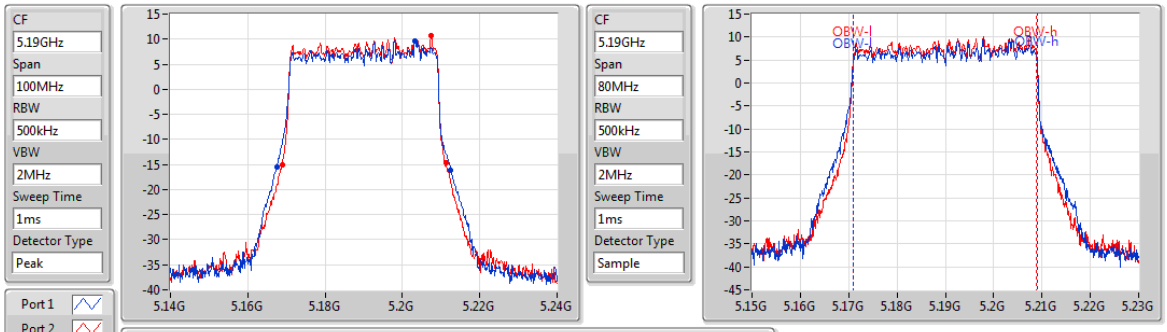
5825MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
19.058M	5.815507G	5.834565G	19.161M	5.815391G	5.834551G	500k	1
19.13M	5.815435G	5.834565G	20.376M	5.81458G	5.834957G	500k	2

802.11ax HEW40_Nss1,(MCS0)_2TX **EBW**

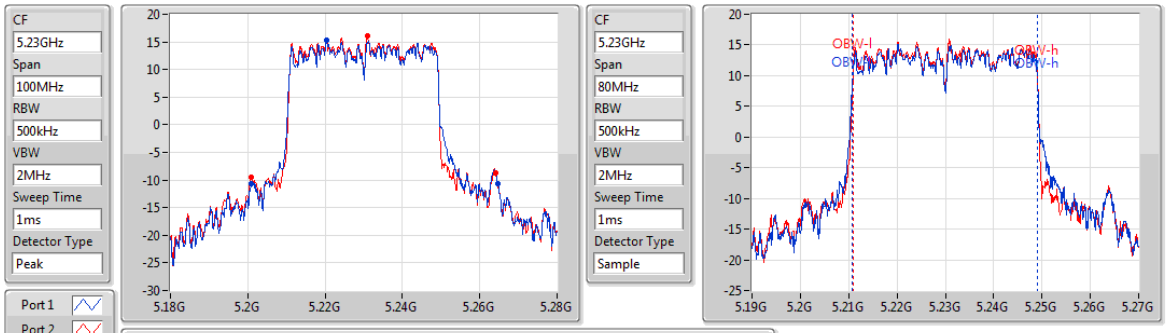
5190MHz



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
44.928M	5.167536G	5.212464G	38.09M	5.170897G	5.208987G	Inf	1
42.464M	5.168841G	5.211304G	37.858M	5.171013G	5.208871G	Inf	2

802.11ax HEW40_Nss1,(MCS0)_2TX **EBW**

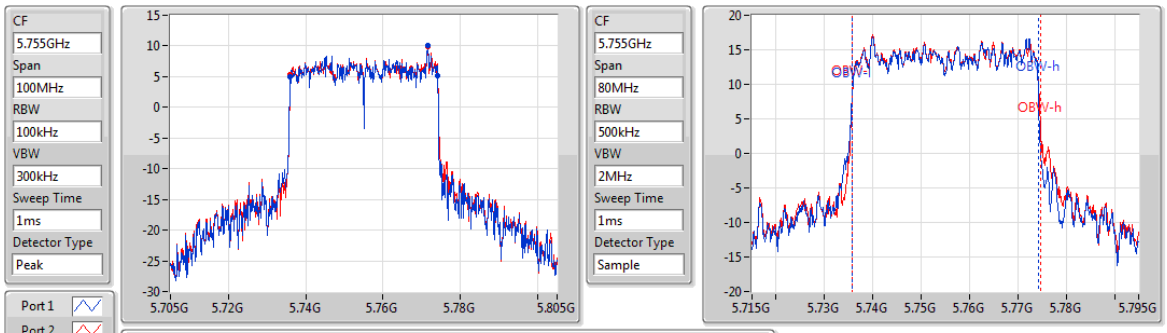
5230MHz



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
63.913M	5.20087G	5.264783G	38.321M	5.210781G	5.249103G	Inf	1
63.333M	5.20087G	5.264203G	37.974M	5.211013G	5.248987G	Inf	2

802.11ax HEW40_Nss1,(MCS0)_2TX **EBW**

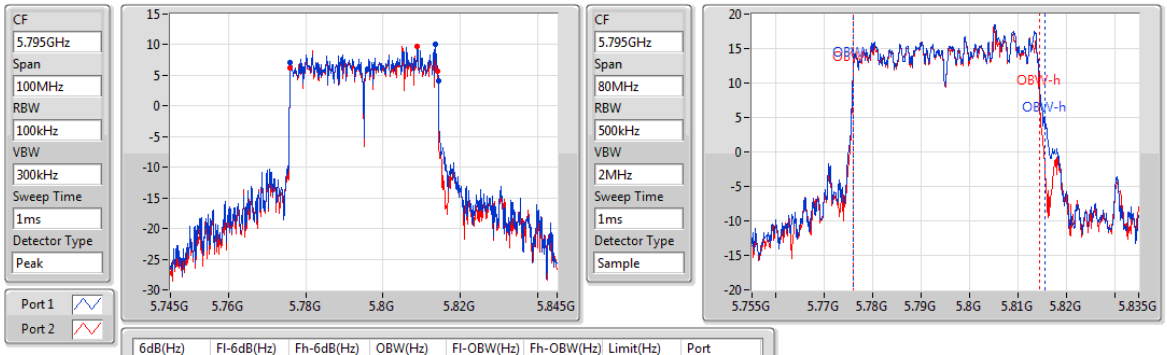
5755MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
38.116M	5.736014G	5.77413G	38.553M	5.735666G	5.774219G	500k	1
38.116M	5.736014G	5.77413G	39.016M	5.735781G	5.774797G	500k	2

802.11ax HEW40_Nss1,(MCS0)_2TX **EBW**

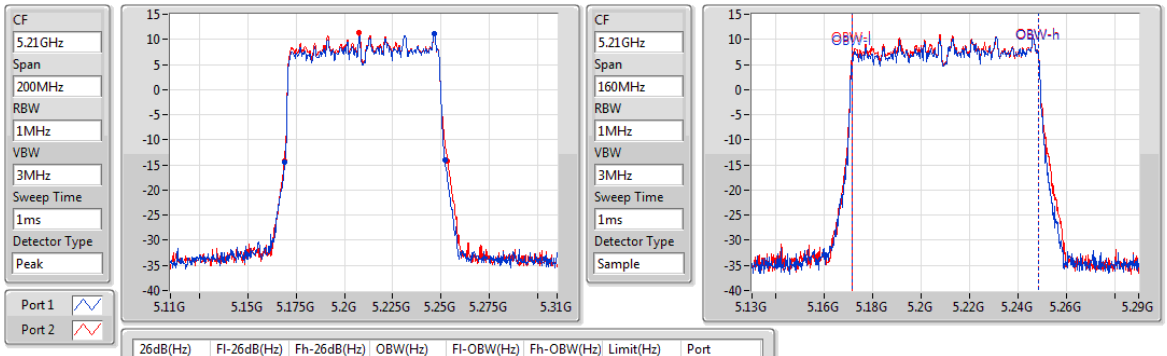
5795MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
38.261M	5.776014G	5.814275G	39.711M	5.775897G	5.815608G	500k	1
38.116M	5.776014G	5.81413G	38.669M	5.775897G	5.814566G	500k	2

802.11ax HEW80_Nss1,(MCS0)_2TX **EBW**

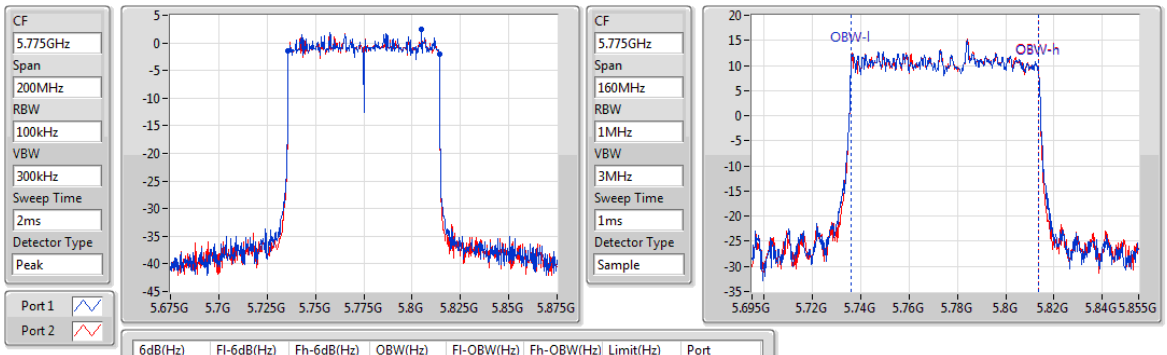
5210MHz



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
82.899M	5.16913G	5.252029G	77.337M	5.171331G	5.248669G	Inf	1
84.348M	5.168841G	5.253188G	77.337M	5.171331G	5.248669G	Inf	2

802.11ax HEW80_Nss1,(MCS0)_2TX **EBW**

5775MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
78.261M	5.73587G	5.81413G	77.337M	5.7361G	5.813437G	500k	1
78.261M	5.73587G	5.81413G	77.337M	5.7361G	5.813437G	500k	2

3.3 RF Output Power

3.3.1 Limit of RF Output Power

Frequency band 5150-5250 MHz		
Operating Mode		**Limit**
☐	Outdoor access point	Conducted Power: 1 W The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm)
☒	Indoor access point	Conducted Power: 1 W
☐	Fixed point-to-point access points	Conducted Power: 1 W
☐	Client devices	Conducted Power: 250 mW

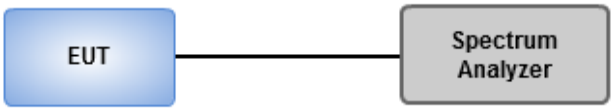
Frequency Band (MHz)		**Limit**
☒	5725 ~ 5850	Conducted Power: 1 W
Note: “B” is the 26dB emission bandwidth in MHz.		

3.3.2 Test Procedures

Method PM-G (Measurement using a gated RF average power meter)

Measurements is performed using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

3.3.3 Test Setup



3.3.4 Test Result of Maximum Conducted Output Power

Ambient Condition	20-24°C / 64-66%	Tested By	Aska Huang

Non-beamforming mode

Summary

Mode	Total Power (dBm)	Total Power (W)	EIRP (dBm)	EIRP (W)
5.15-5.25GHz	-	-	-	-
802.11a_Nss1,(6Mbps)_2TX	29.13	0.81846	33.13	2.05589
802.11ac VHT20_Nss1,(MCS0)_2TX	29.05	0.80353	33.05	2.01837
802.11ac VHT40_Nss1,(MCS0)_2TX	28.42	0.69502	32.42	1.74582
802.11ac VHT80_Nss1,(MCS0)_2TX	22.42	0.17458	26.42	0.43853
802.11ax HEW20_Nss1,(MCS0)_2TX	29.12	0.81658	33.12	2.05116
802.11ax HEW40_Nss1,(MCS0)_2TX	28.51	0.70958	32.51	1.78238
802.11ax HEW80_Nss1,(MCS0)_2TX	22.47	0.17660	26.47	0.44361
5.725-5.85GHz	-	-	-	-
802.11a_Nss1,(6Mbps)_2TX	29.60	0.91201	34.10	2.57040
802.11ac VHT20_Nss1,(MCS0)_2TX	29.56	0.90365	34.06	2.54683
802.11ac VHT40_Nss1,(MCS0)_2TX	29.53	0.89743	34.03	2.52930
802.11ac VHT80_Nss1,(MCS0)_2TX	25.34	0.34198	29.84	0.96383
802.11ax HEW20_Nss1,(MCS0)_2TX	29.61	0.91411	34.11	2.57632
802.11ax HEW40_Nss1,(MCS0)_2TX	29.61	0.91411	34.11	2.57632
802.11ax HEW80_Nss1,(MCS0)_2TX	25.45	0.35075	29.95	0.98855

＊Highlight value is the maximum power.

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Total Power (dBm)	Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)
802.11a_Nss1,(6Mbps)_2TX	-	-	-	-	-	-	-	-
5180MHz	Pass	4.00	23.45	23.81	26.64	30.00	30.64	36.00
5200MHz	Pass	4.00	26.02	26.22	29.13	30.00	33.13	36.00
5240MHz	Pass	4.00	25.41	25.71	28.57	30.00	32.57	36.00
5745MHz	Pass	4.50	26.51	26.62	29.58	30.00	34.08	36.00
5785MHz	Pass	4.50	26.37	26.75	29.57	30.00	34.07	36.00
5825MHz	Pass	4.50	26.42	26.76	29.60	30.00	34.10	36.00
802.11ac VHT20_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5180MHz	Pass	4.00	22.33	22.65	25.50	30.00	29.50	36.00
5200MHz	Pass	4.00	25.91	26.16	29.05	30.00	33.05	36.00
5240MHz	Pass	4.00	25.53	25.82	28.69	30.00	32.69	36.00
5745MHz	Pass	4.50	26.4	26.69	29.56	30.00	34.06	36.00
5785MHz	Pass	4.50	26.29	26.59	29.45	30.00	33.95	36.00
5825MHz	Pass	4.50	26.22	26.61	29.43	30.00	33.93	36.00
802.11ac VHT40_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5190MHz	Pass	4.00	20.06	20.62	23.36	30.00	27.36	36.00
5230MHz	Pass	4.00	25.11	25.69	28.42	30.00	32.42	36.00
5755MHz	Pass	4.50	26.43	26.61	29.53	30.00	34.03	36.00
5795MHz	Pass	4.50	26.22	26.58	29.41	30.00	33.91	36.00
802.11ac VHT80_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5210MHz	Pass	4.00	19.43	19.39	22.42	30.00	26.42	36.00
5775MHz	Pass	4.50	22.08	22.57	25.34	30.00	29.84	36.00
802.11ax HEW20_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5180MHz	Pass	4.00	22.43	22.7	25.58	30.00	29.58	36.00
5200MHz	Pass	4.00	25.99	26.23	29.12	30.00	33.12	36.00
5240MHz	Pass	4.00	25.61	25.95	28.79	30.00	32.79	36.00
5745MHz	Pass	4.50	26.45	26.75	29.61	30.00	34.11	36.00
5785MHz	Pass	4.50	26.38	26.71	29.56	30.00	34.06	36.00
5825MHz	Pass	4.50	26.38	26.67	29.54	30.00	34.04	36.00
802.11ax HEW40_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5190MHz	Pass	4.00	20.14	20.72	23.45	30.00	27.45	36.00
5230MHz	Pass	4.00	25.17	25.81	28.51	30.00	32.51	36.00
5755MHz	Pass	4.50	26.48	26.72	29.61	30.00	34.11	36.00
5795MHz	Pass	4.50	26.37	26.64	29.52	30.00	34.02	36.00
802.11ax HEW80_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5210MHz	Pass	4.00	19.51	19.41	22.47	30.00	26.47	36.00
5775MHz	Pass	4.50	22.1	22.75	25.45	30.00	29.95	36.00

DG = Directional Gain;**Port X** = Port X output power

Beamforming mode

Summary

Mode	Total Power (dBm)	Total Power (W)	EIRP (dBm)	EIRP (W)
5.15-5.25GHz	-	-	-	-
802.11ac VHT20-BF_Nss1,(MCS0)_2TX	28.61	0.72611	35.52	3.56451
802.11ac VHT40-BF_Nss1,(MCS0)_2TX	28.19	0.65917	35.10	3.23594
802.11ac VHT80-BF_Nss1,(MCS0)_2TX	22.34	0.17140	29.25	0.84140
802.11ax HEW20-BF_Nss1,(MCS0)_2TX	28.71	0.74302	35.62	3.64754
802.11ax HEW40-BF_Nss1,(MCS0)_2TX	28.42	0.69502	35.33	3.41193
802.11ax HEW80-BF_Nss1,(MCS0)_2TX	22.42	0.17458	29.33	0.85704
5.725-5.85GHz	-	-	-	-
802.11ac VHT20-BF_Nss1,(MCS0)_2TX	28.46	0.70146	35.77	3.77572
802.11ac VHT40-BF_Nss1,(MCS0)_2TX	28.45	0.69984	35.76	3.76704
802.11ac VHT80-BF_Nss1,(MCS0)_2TX	25.24	0.33420	32.55	1.79887
802.11ax HEW20-BF_Nss1,(MCS0)_2TX	28.56	0.71779	35.87	3.86367
802.11ax HEW40-BF_Nss1,(MCS0)_2TX	28.57	0.71945	35.88	3.87258
802.11ax HEW80-BF_Nss1,(MCS0)_2TX	25.34	0.34198	32.65	1.84077

＊Highlight value is the maximum power.

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Total Power (dBm)	Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)
802.11ac VHT20-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5180MHz	Pass	6.91	22.23	22.42	25.34	29.09	32.25	36.00
5200MHz	Pass	6.91	25.49	25.68	28.60	29.09	35.51	36.00
5240MHz	Pass	6.91	25.48	25.72	28.61	29.09	35.52	36.00
5745MHz	Pass	7.31	25.38	25.51	28.46	28.69	35.77	36.00
5785MHz	Pass	7.31	25.25	25.53	28.40	28.69	35.71	36.00
5825MHz	Pass	7.31	25.17	25.36	28.28	28.69	35.59	36.00
802.11ac VHT40-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5190MHz	Pass	6.91	19.96	20.12	23.05	29.09	29.96	36.00
5230MHz	Pass	6.91	24.89	25.45	28.19	29.09	35.10	36.00
5755MHz	Pass	7.31	25.37	25.51	28.45	28.69	35.76	36.00
5795MHz	Pass	7.31	25.28	25.43	28.37	28.69	35.68	36.00
802.11ac VHT80-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5210MHz	Pass	6.91	19.38	19.27	22.34	29.09	29.25	36.00
5775MHz	Pass	7.31	21.91	22.53	25.24	28.69	32.55	36.00
802.11ax HEW20-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5180MHz	Pass	6.91	22.36	22.53	25.46	29.09	32.37	36.00
5200MHz	Pass	6.91	25.53	25.76	28.66	29.09	35.57	36.00
5240MHz	Pass	6.91	25.58	25.81	28.71	29.09	35.62	36.00
5745MHz	Pass	7.31	25.42	25.68	28.56	28.69	35.87	36.00
5785MHz	Pass	7.31	25.31	25.63	28.48	28.69	35.79	36.00
5825MHz	Pass	7.31	25.28	25.45	28.38	28.69	35.69	36.00
802.11ax HEW40-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5190MHz	Pass	6.91	20.05	20.38	23.23	29.09	30.14	36.00
5230MHz	Pass	6.91	25.02	25.76	28.42	29.09	35.33	36.00
5755MHz	Pass	7.31	25.43	25.68	28.57	28.69	35.88	36.00
5795MHz	Pass	7.31	25.31	25.57	28.45	28.69	35.76	36.00
802.11ax HEW80-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5210MHz	Pass	6.91	19.45	19.36	22.42	29.09	29.33	36.00
5775MHz	Pass	7.31	22.03	22.61	25.34	28.69	32.65	36.00

DG = Directional Gain

For 5.15 ~ 5.25 GHz,

Directional Gain= $10 * \log((10^{3.8/20}+10^{4/20})^2/2)$ = 6.91 dBi > 6 dBi, limit shall be reduced to 30 dBm – (6.91 dBi – 6 dB) = 29.09 dBm

For 5.72 ~ 5.85 GHz,

Directional Gain= $10 * \log((10^{4.5/20}+10^{4.1/20})^2/2)$ = 7.31 dBi > 6 dBi, limit shall be reduced to 30 dBm – (7.31 dBi – 6 dB) = 28.69 dBm

Port X = Port X output power

3.4 Peak Power Spectral Density

3.4.1 Limit of Peak Power Spectral Density

Frequency band 5150-5250 MHz		
Operating Mode		**Limit**
☐	Outdoor access point	17 dBm / MHz
☒	Indoor access point	17 dBm / MHz
☐	Fixed point-to-point access points	17 dBm / MHz
☐	Client devices	11 dBm / MHz

Frequency Band (MHz)		**Limit**
☒	5725 ~ 5850	30 dBm /500 kHz

3.4.2 Test Procedures

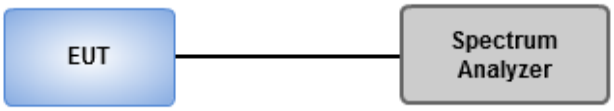
For 5150 ~ 5250 MHz

1. Set RBW = 1 MHz, VBW = 3 MHz, Sweep time = auto, Detector = RMS.
2. Trace average 100 traces.
3. Use the peak marker function to determine the maximum amplitude level.

For 5725 ~ 5850 MHz

1. Set RBW = 500 kHz, VBW = 3 MHz, Sweep time = auto, Detector = RMS.
2. Trace average 100 traces.
3. Use the peak marker function to determine the maximum amplitude level.

3.4.3 Test Setup



3.4.4 Test Result of Peak Power Spectral Density

Ambient Condition	20-24°C / 64-66%	Tested By	Aska Huang

Summary

Mode	PD (dBm/RBW)	EIRP PD (dBm/RBW)
5.15-5.25GHz	-	-
802.11a_Nss1,(6Mbps)_2TX	15.93	22.84
802.11ax HEW20_Nss1,(MCS0)_2TX	15.90	22.81
802.11ax HEW40_Nss1,(MCS0)_2TX	12.06	18.97
802.11ax HEW80_Nss1,(MCS0)_2TX	3.85	10.76
5.725-5.85GHz	-	-
802.11a_Nss1,(6Mbps)_2TX	15.08	22.39
802.11ax HEW20_Nss1,(MCS0)_2TX	15.84	23.15
802.11ax HEW40_Nss1,(MCS0)_2TX	12.77	20.08
802.11ax HEW80_Nss1,(MCS0)_2TX	5.17	12.48

RBW = 500kHz for 5.725-5.85GHz band / 1MHz for other band;

Result

Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	Port 2 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)	EIRP PD (dBm/RBW)	EIRP PD Limit (dBm/RBW)
802.11a_Nss1,(6Mbps)_2TX	-	-	-	-	-	-	-	-
5180MHz	Pass	6.91	10.60	10.97	13.74	16.09	20.65	23.00
5200MHz	Pass	6.91	12.95	13.15	15.93	16.09	22.84	23.00
5240MHz	Pass	6.91	12.55	12.80	15.60	16.09	22.51	23.00
5745MHz	Pass	7.31	12.13	12.26	15.08	28.69	22.39	36.00
5785MHz	Pass	7.31	11.91	12.27	14.99	28.69	22.30	36.00
5825MHz	Pass	7.31	11.82	12.07	14.85	28.69	22.16	36.00
802.11ax HEW20_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5180MHz	Pass	6.91	9.01	9.24	12.10	16.09	19.01	23.00
5200MHz	Pass	6.91	12.88	13.14	15.90	16.09	22.81	23.00
5240MHz	Pass	6.91	12.63	12.57	15.51	16.09	22.42	23.00
5745MHz	Pass	7.31	12.95	12.52	15.48	28.69	22.79	36.00
5785MHz	Pass	7.31	12.27	13.32	15.80	28.69	23.11	36.00
5825MHz	Pass	7.31	12.63	13.15	15.84	28.69	23.15	36.00
802.11ax HEW40_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5190MHz	Pass	6.91	3.81	4.24	6.98	16.09	13.89	23.00
5230MHz	Pass	6.91	9.07	9.36	12.06	16.09	18.97	23.00
5755MHz	Pass	7.31	9.05	9.51	12.30	28.69	19.61	36.00
5795MHz	Pass	7.31	9.92	10.04	12.77	28.69	20.08	36.00
802.11ax HEW80_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5210MHz	Pass	6.91	0.64	1.03	3.85	16.09	10.76	23.00
5775MHz	Pass	7.31	1.91	2.67	5.17	28.69	12.48	36.00

DG = Directional Gain; **RBW** = 500kHz for 5.725-5.85GHz band / 1MHz for other band;

For 5.15 ~ 5.25 GHz,

Directional Gain= 10 * log((10$^{3.8/20}$+10$^{4/20}$)^2/2) = 6.91 dBi > 6 dBi, limit shall be reduced to 17 dBm – (6.91 dBi – 6 dB) =16.09 dBm

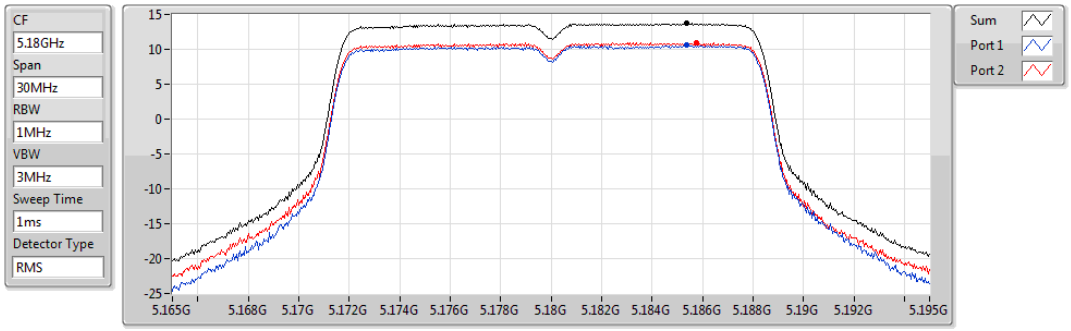
For 5.72 ~ 5.85 GHz,

Directional Gain= 10 * log((10$^{4.5/20}$+10$^{4.1/20}$)^2/2) = 7.31 dBi > 6 dBi, limit shall be reduced to 30 dBm – (7.31 dBi – 6 dB) = 28.69 dBm

PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; **Port X** = Port Xpower density;

802.11a_Nss1,(6Mbps)_2TX **PSD**

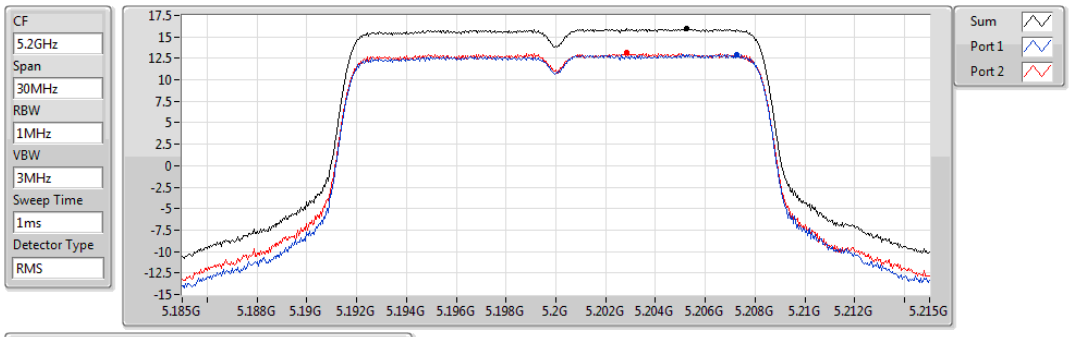
5180MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
13.74	13.74	10.60	10.97

802.11a_Nss1,(6Mbps)_2TX **PSD**

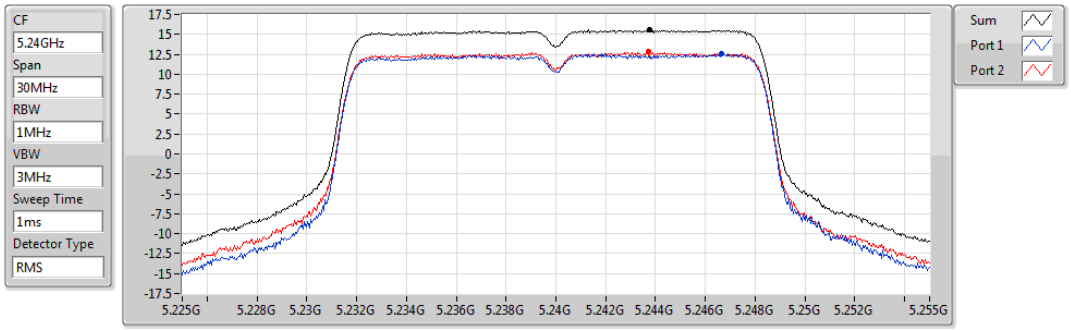
5200MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
15.93	15.93	12.95	13.15

802.11a_Nss1,(6Mbps)_2TX **PSD**

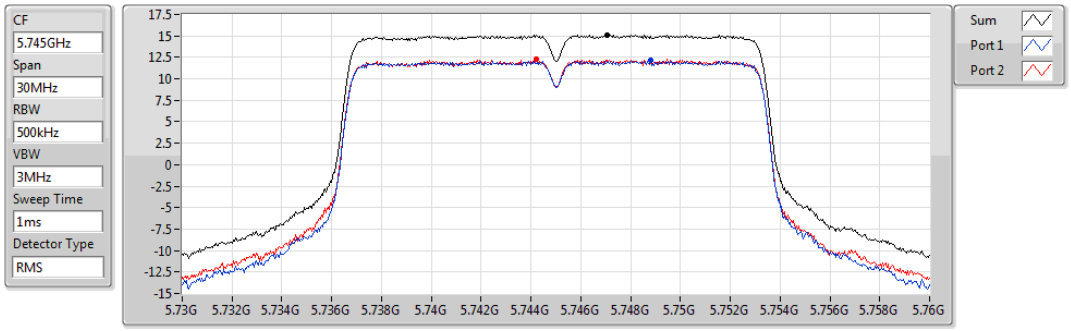
5240MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
15.60	15.60	12.55	12.80

802.11a_Nss1,(6Mbps)_2TX **PSD**

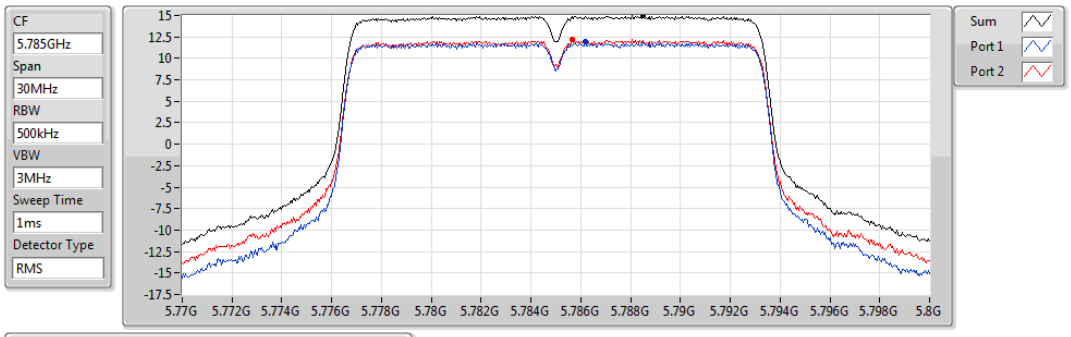
5745MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
15.08	15.08	12.13	12.26

802.11a_Nss1,(6Mbps)_2TX **PSD**

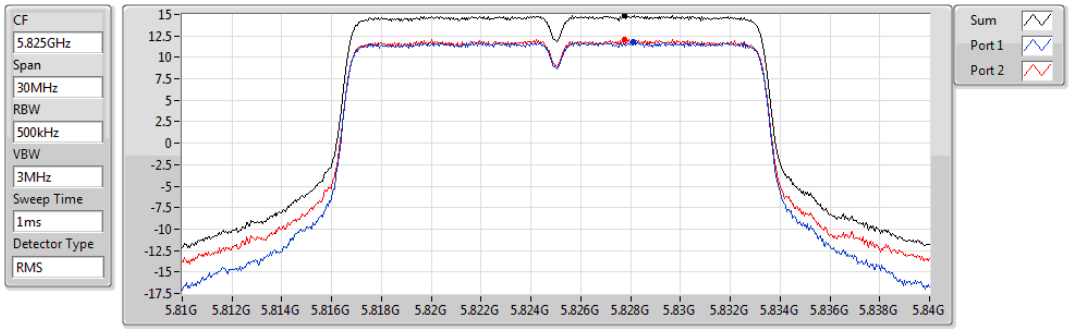
5785MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
14.99	14.99	11.91	12.27

802.11a_Nss1,(6Mbps)_2TX **PSD**

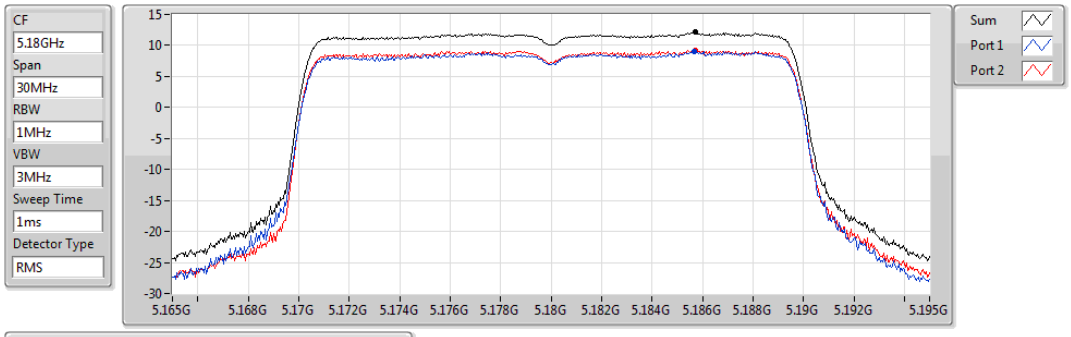
5825MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
14.85	14.85	11.82	12.07

802.11ax HEW20_Nss1,(MCS0)_2TX **PSD**

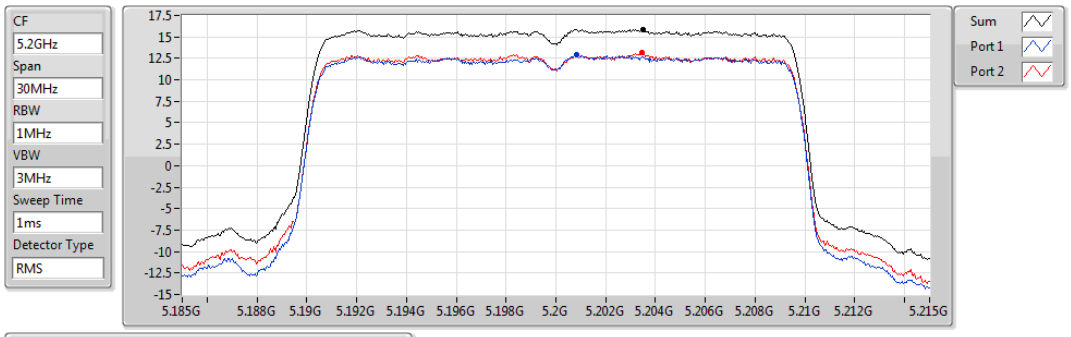
5180MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
12.10	12.10	9.01	9.24

802.11ax HEW20_Nss1,(MCS0)_2TX **PSD**

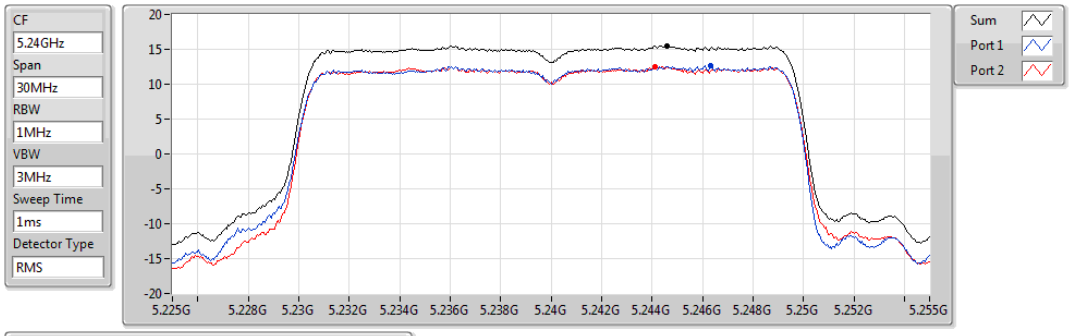
5200MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
15.90	15.90	12.88	13.14

802.11ax HEW20_Nss1,(MCS0)_2TX **PSD**

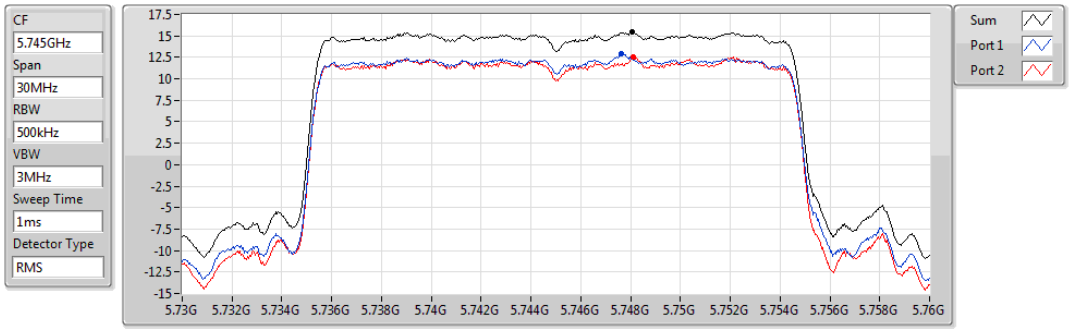
5240MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
15.51	15.51	12.63	12.57

802.11ax HEW20_Nss1,(MCS0)_2TX **PSD**

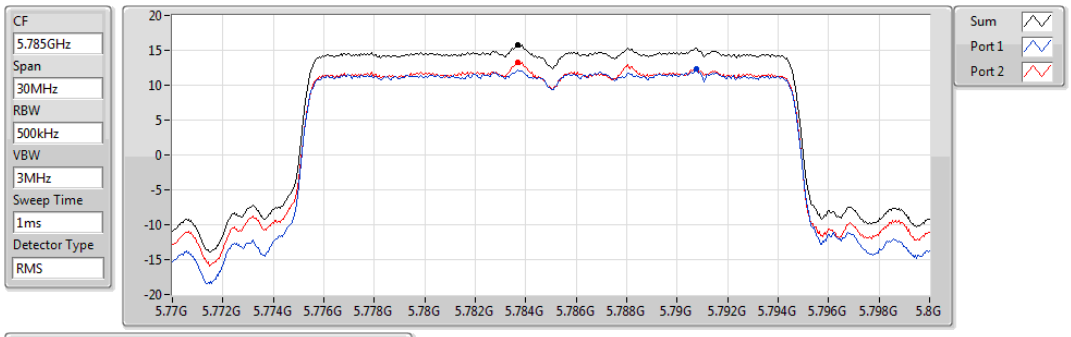
5745MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
15.48	15.48	12.95	12.52

802.11ax HEW20_Nss1,(MCS0)_2TX **PSD**

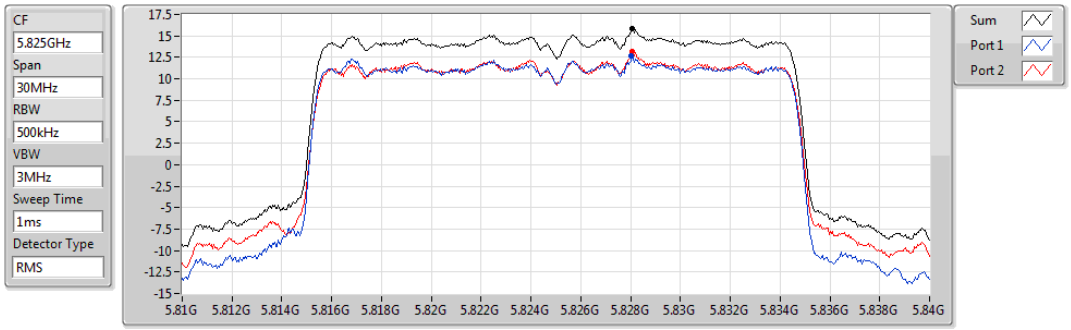
5785MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
15.80	15.80	12.27	13.32

802.11ax HEW20_Nss1,(MCS0)_2TX **PSD**

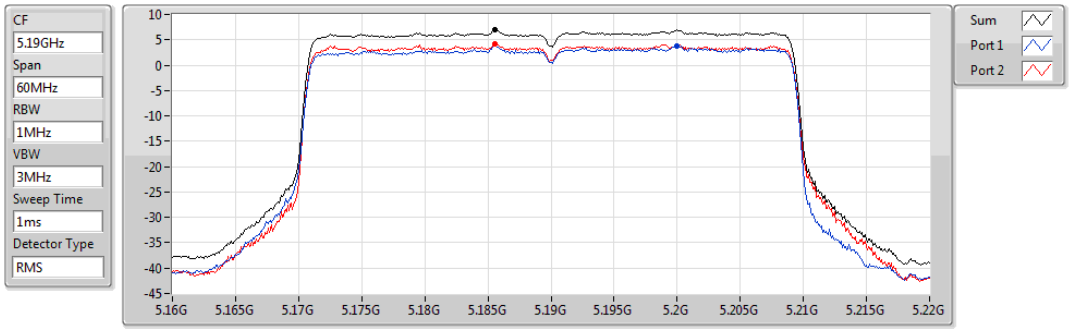
5825MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
15.84	15.84	12.63	13.15

802.11ax HEW40_Nss1,(MCS0)_2TX **PSD**

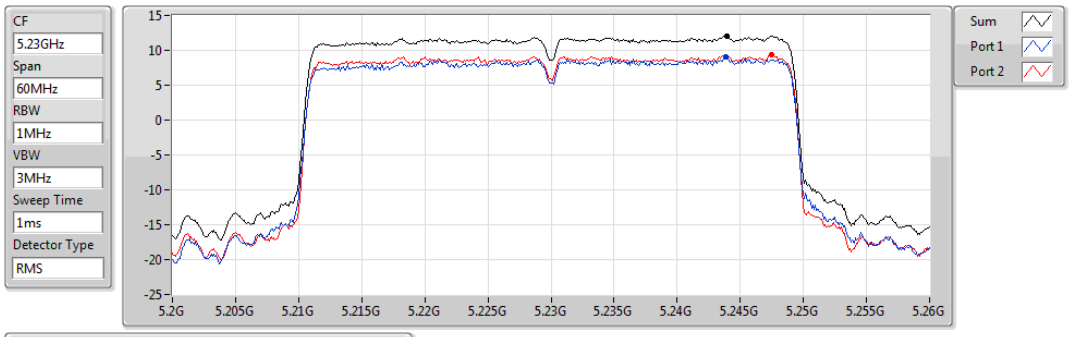
5190MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
6.98	6.98	3.81	4.24

802.11ax HEW40_Nss1,(MCS0)_2TX **PSD**

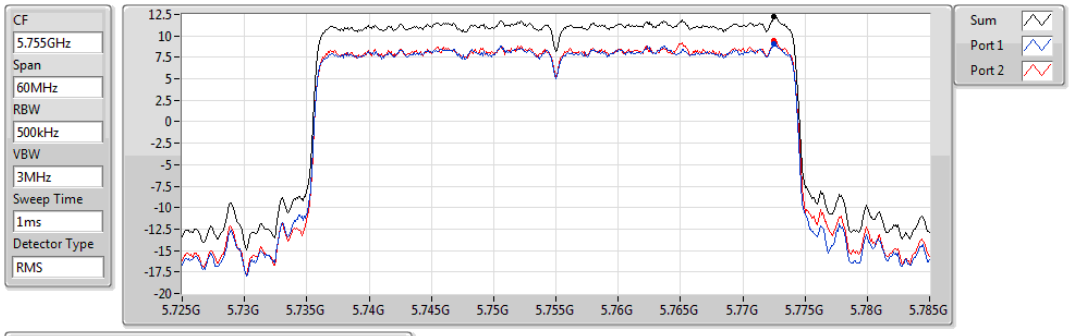
5230MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
12.06	12.06	9.07	9.36

802.11ax HEW40_Nss1,(MCS0)_2TX **PSD**

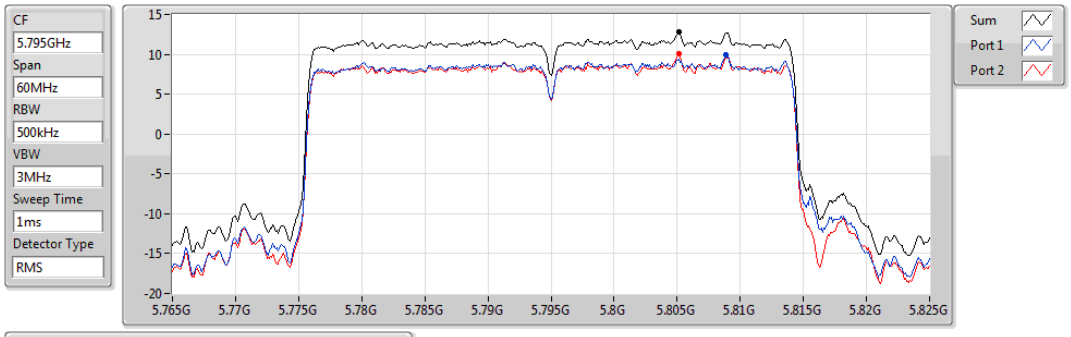
5755MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
12.30	12.30	9.05	9.51

802.11ax HEW40_Nss1,(MCS0)_2TX **PSD**

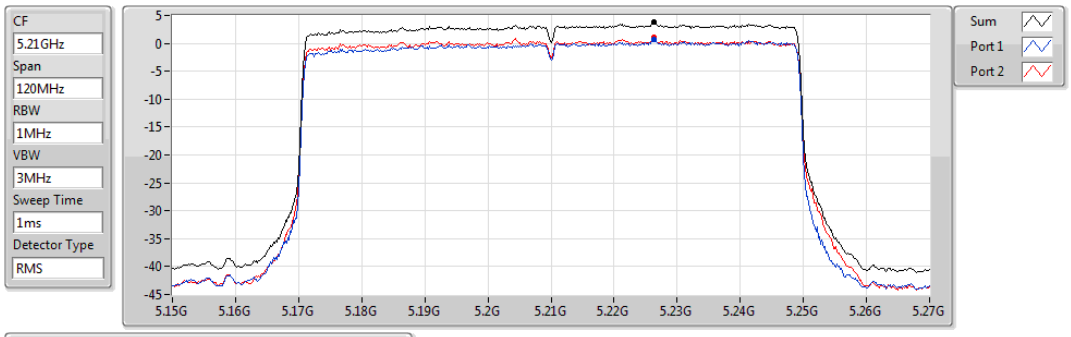
5795MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
12.77	12.77	9.92	10.04

802.11ax HEW80_Nss1,(MCS0)_2TX **PSD**

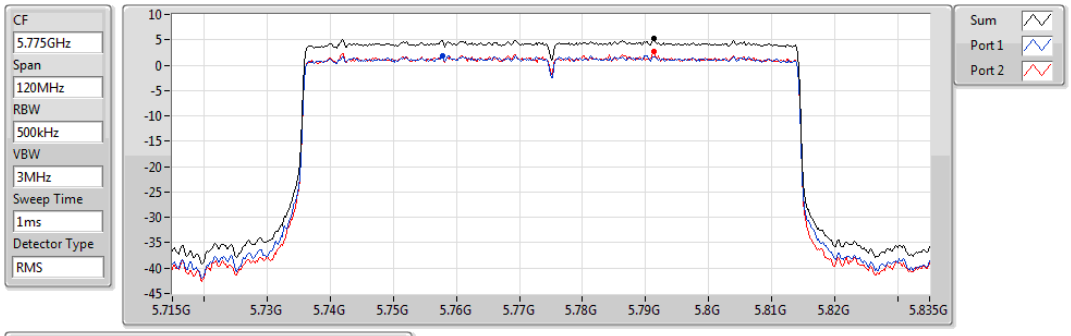
5210MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
3.85	3.85	0.64	1.03

802.11ax HEW80_Nss1,(MCS0)_2TX **PSD**

5775MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
5.17	5.17	1.91	2.67

3.5 Transmitter Radiated and Band Edge Emissions

3.5.1 Limit of Transmitter Radiated and Band Edge Emissions

Restricted Band Emissions Limit			
Frequency Range (MHz)	**Field Strength (uV/m)**	**Field Strength (dBuV/m)**	**Measure Distance (m)**
0.009~0.490	2400/F(kHz)	48.5 - 13.8	300
0.490~1.705	24000/F(kHz)	33.8 - 23	30
1.705~30.0	30	29	30
30~88	100	40	3
88~216	150	43.5	3
216~960	200	46	3
Above 960	500	54	3

Note 1:
Qusai-Peak value is measured for frequency below 1GHz except for 9–90 kHz, 110–490 kHz frequency band. Peak and average value are measured for frequency above 1GHz. The limit on average radio frequency emission is as above table. The limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit
Note 2:
Measurements may be performed at a distance other than what is specified provided. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor as below, Frequency at or above 30 MHz: 20 dB/decade Frequency below 30 MHz: 40 dB/decade.

Un-restricted band emissions above 1GHz Limit	
Operating Band	**Limit**
5.15 - 5.25 GHz	e.i.r.p. -27 dBm [68.2 dBuV/m@3m]
5.725 - 5.850 GHz	All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

Note 1: Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).

3.5.2 Test Procedures

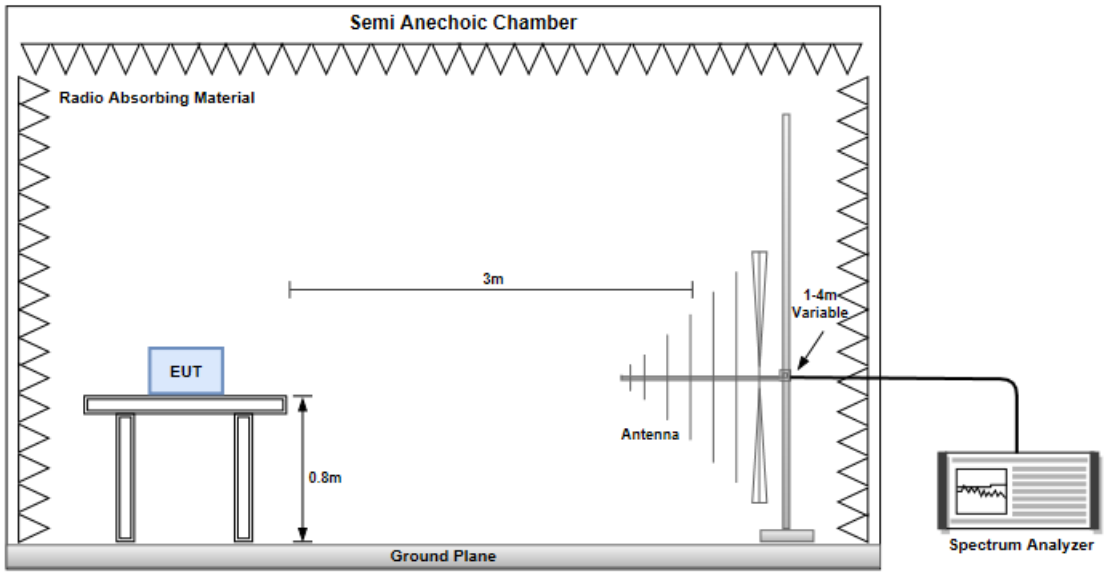
1. Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360°. A continuously-rotating, remotely-controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission frequency. The EUT is placed at test table. For emissions testing at or below 1 GHz, the table height is 80 cm above the reference ground plane. For emission measurements above 1 GHz, the table height is 1.5 m
2. Measurement is made with the antenna positioned in both the horizontal and vertical planes of polarization. The measurement antenna is varied in height (1m ~ 4m) above the reference ground plane to obtain the maximum signal strength. Distance between EUT and antenna is 3 m.
3. This investigation is performed with the EUT rotated 360°, the antenna height scanned between 1 m and 4 m, and the antenna rotated to repeat the measurements for both the horizontal and vertical antenna polarizations.

Note:

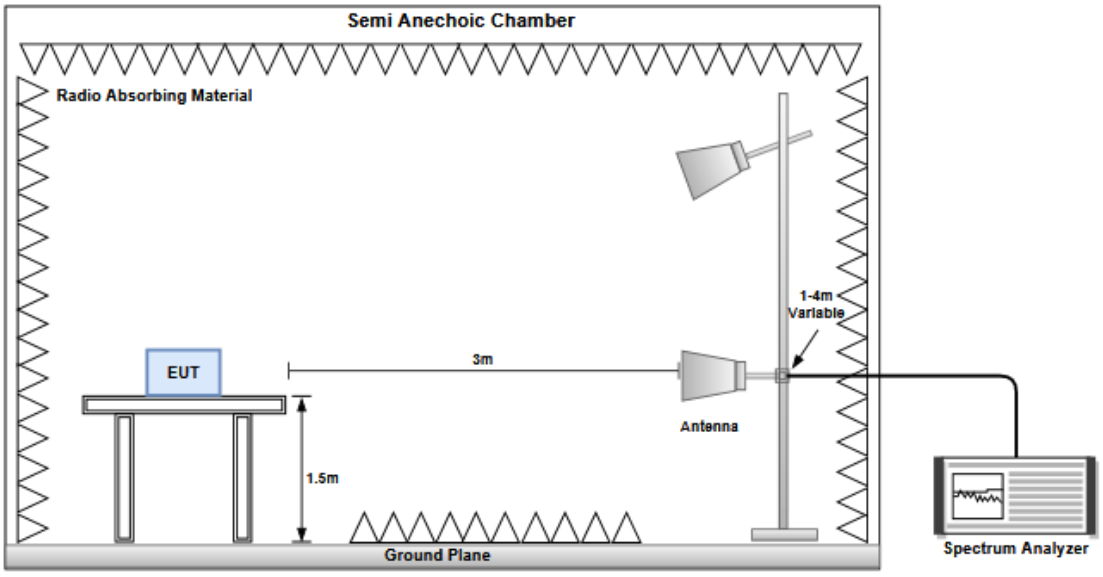
1. 120kHz measurement bandwidth of test receiver and Quasi-peak detector is for radiated emission below 1GHz.
2. RBW=1MHz, VBW=3MHz and Peak detector is for peak measured value of radiated emission above 1GHz.
3. RBW=1MHz, VBW=1/T and Peak detector is for average measured value of radiated emission above 1GHz.

3.5.3 Test Setup

Radiated Emissions below 1 GHz



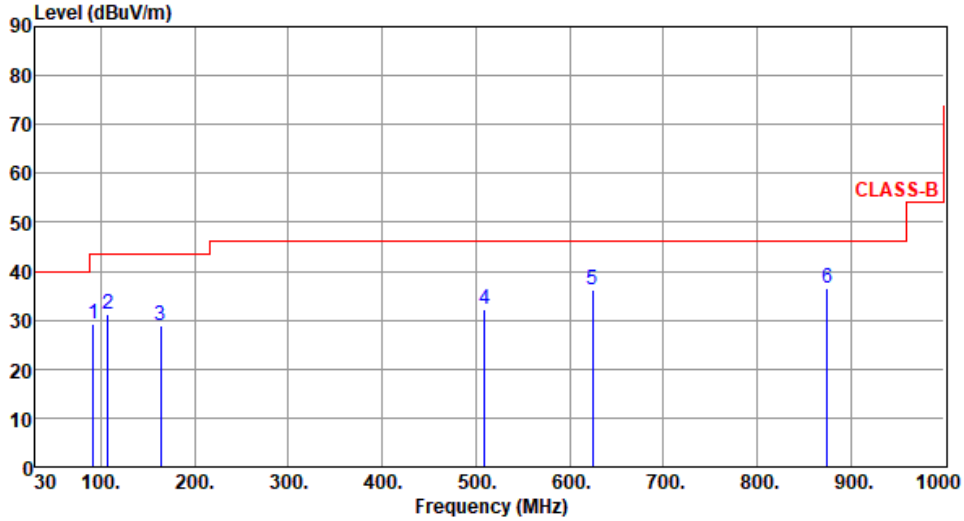
Radiated Emissions above 1 GHz



3.5.4 Transmitter Radiated Unwanted Emissions (Below 1GHz)

Modulation	11a	Test Freq. (MHz)	5200
Polarization	Horizontal		

Test By :Akun Chung Temperature(℃):20 Humidity(%):69

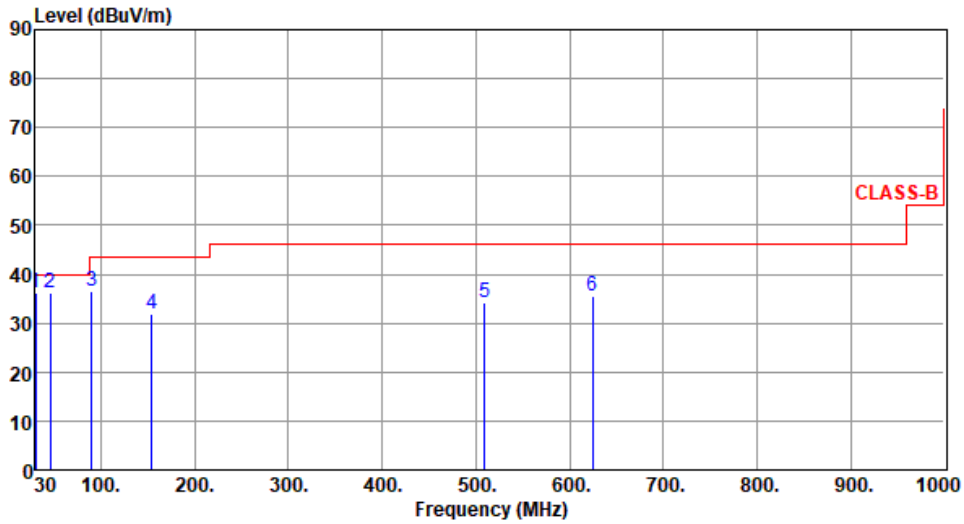


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	92.08	29.11	43.50	-14.39	43.59	-14.48	Peak	---	---
2	107.60	31.22	43.50	-12.28	43.45	-12.23	Peak	---	---
3	163.86	28.91	43.50	-14.59	37.92	-9.01	Peak	---	---
4	509.18	32.20	46.00	-13.80	35.21	-3.01	Peak	---	---
5	624.61	36.06	46.00	-9.94	36.58	-0.52	Peak	---	---
6	874.87	36.47	46.00	-9.53	33.04	3.43	Peak	---	---

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).
Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.

Modulation	11a	Test Freq. (MHz)	5200
Polarization	Vertical		

Test By :Akun Chung Temperature(℃):20 Humidity(%):69

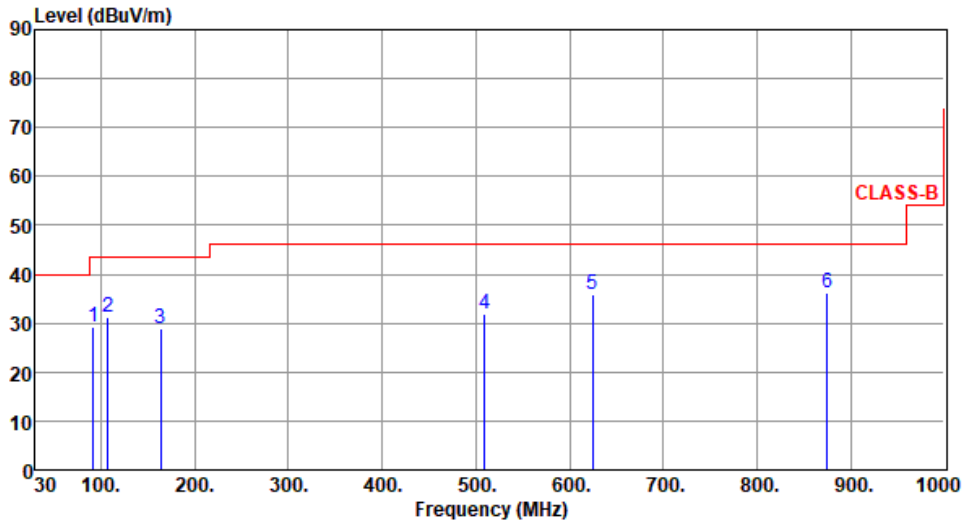


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	30.00	36.27	40.00	-3.73	45.75	-9.48	QP	100	122
2	45.52	36.35	40.00	-3.65	44.64	-8.29	QP	100	200
3	90.14	36.69	43.50	-6.81	51.26	-14.57	Peak	---	---
4	154.16	31.97	43.50	-11.53	40.87	-8.90	Peak	---	---
5	509.18	34.13	46.00	-11.87	37.14	-3.01	Peak	---	---
6	624.61	35.59	46.00	-10.41	36.11	-0.52	Peak	---	---

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).
Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.

Modulation	ax (HE20)	Test Freq. (MHz)	5745
Polarization	Horizontal		

Test By :Akun Chung Temperature(℃):20 Humidity(%):69

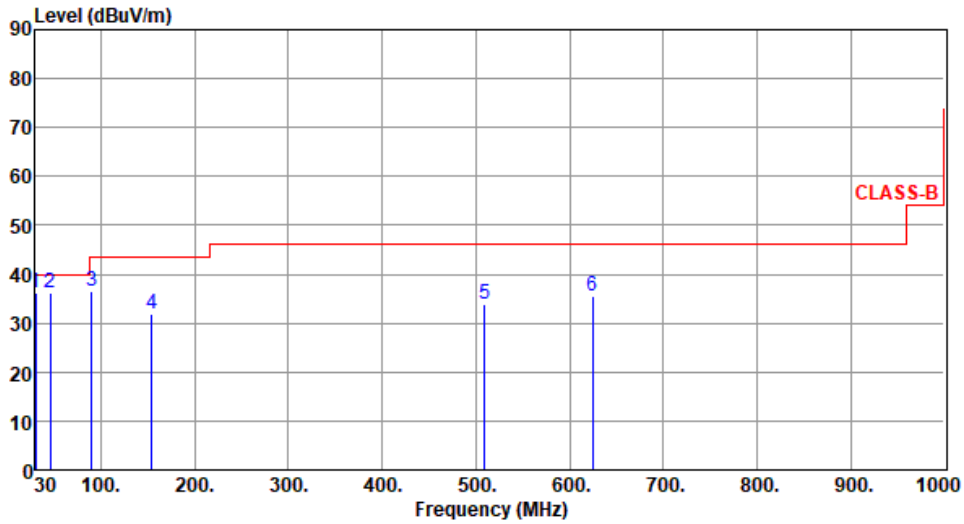


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	92.03	29.06	43.50	-14.44	43.54	-14.48	Peak	---	---
2	107.55	31.17	43.50	-12.33	43.40	-12.23	Peak	---	---
3	163.54	28.74	43.50	-14.76	37.72	-8.98	Peak	---	---
4	509.22	32.03	46.00	-13.97	35.04	-3.01	Peak	---	---
5	624.55	36.02	46.00	-9.98	36.54	-0.52	Peak	---	---
6	874.55	36.28	46.00	-9.72	32.86	3.42	Peak	---	---

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).
Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.

Modulation	ax (HE20)	Test Freq. (MHz)	5745
Polarization	Vertical		

Test By :Akun Chung Temperature(℃):20 Humidity(%):69



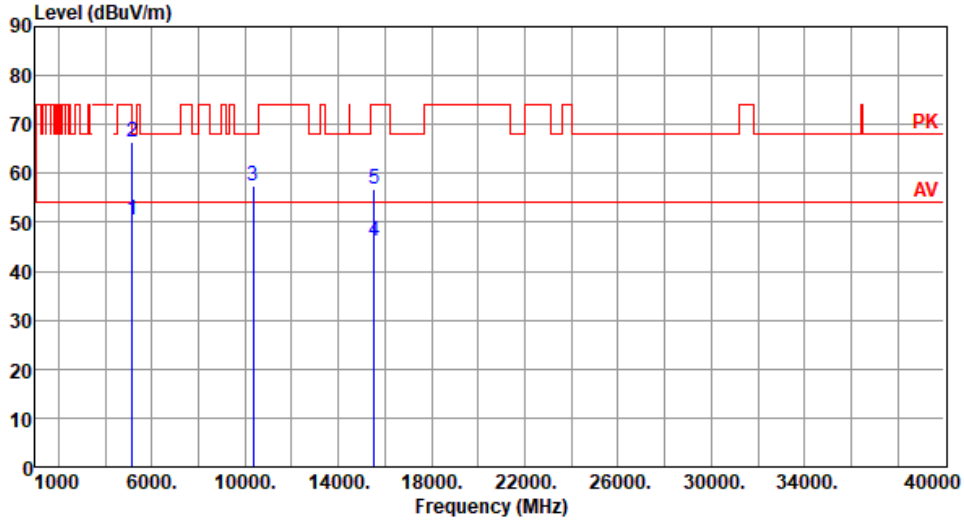
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	30.06	36.15	40.00	-3.85	45.65	-9.50	QP	100	125
2	45.63	36.28	40.00	-3.72	44.58	-8.30	QP	100	201
3	90.22	36.58	43.50	-6.92	51.17	-14.59	Peak	---	---
4	154.29	31.82	43.50	-11.68	40.70	-8.88	Peak	---	---
5	509.23	34.00	46.00	-12.00	37.01	-3.01	Peak	---	---
6	624.88	35.44	46.00	-10.56	35.96	-0.52	Peak	---	---

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).
Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.

3.5.5 Transmitter Radiated Unwanted Emissions (Above 1GHz) for 11a

Modulation	11a	Test Freq. (MHz)	5180
Polarization	Horizontal		

Test By :Akun Chung Temperature(°C):21 Humidity(%):69

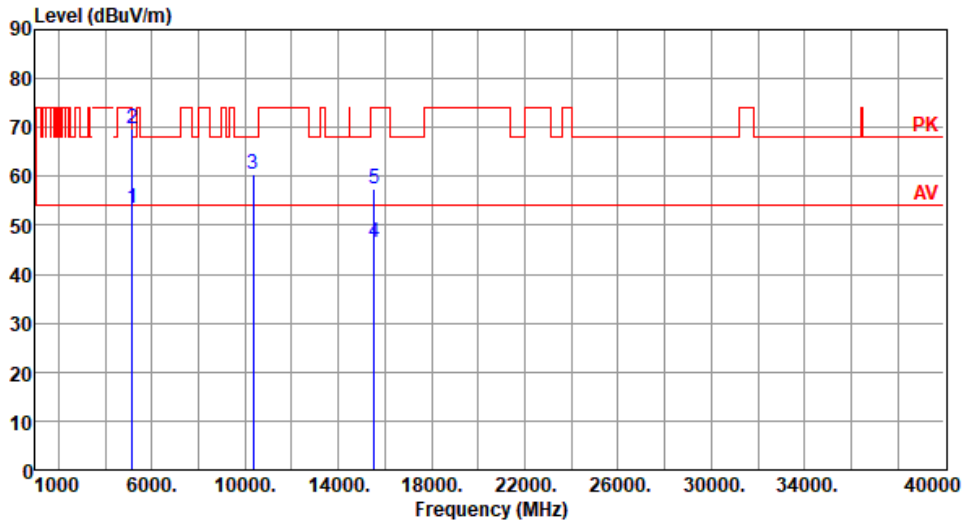


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	50.49	54.00	-3.51	46.11	4.38	Average	128	206
2	5150.00	66.53	74.00	-7.47	62.15	4.38	Peak	128	206
3	10360.00	57.31	68.20	-10.89	42.89	14.42	Peak	118	205
4	15540.00	46.10	54.00	-7.90	31.45	14.65	Average	100	204
5	15540.00	56.93	74.00	-17.07	42.28	14.65	Peak	100	204

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	11a	Test Freq. (MHz)	5180
Polarization	Vertical		

Test By :Akun Chung Temperature(℃):21 Humidity(%):69

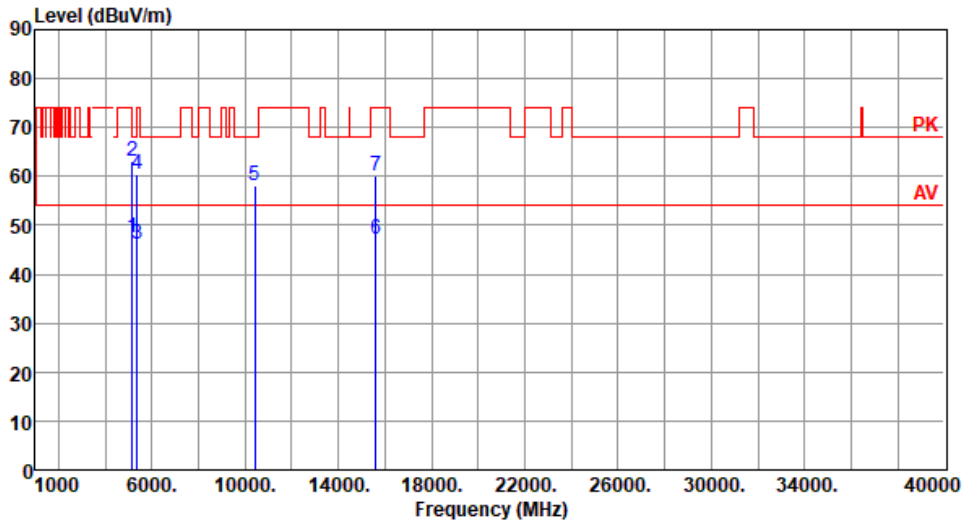


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	53.53	54.00	-0.47	49.15	4.38	Average	100	145
2	5150.00	69.72	74.00	-4.28	65.34	4.38	Peak	100	145
3	10360.00	60.28	68.20	-7.92	45.86	14.42	Peak	133	345
4	15540.00	46.43	54.00	-7.57	31.78	14.65	Average	100	341
5	15540.00	57.50	74.00	-16.50	42.85	14.65	Peak	100	341

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	11a	Test Freq. (MHz)	5200
Polarization	Horizontal		

Test By :Akun Chung Temperature(℃):21 Humidity(%):69

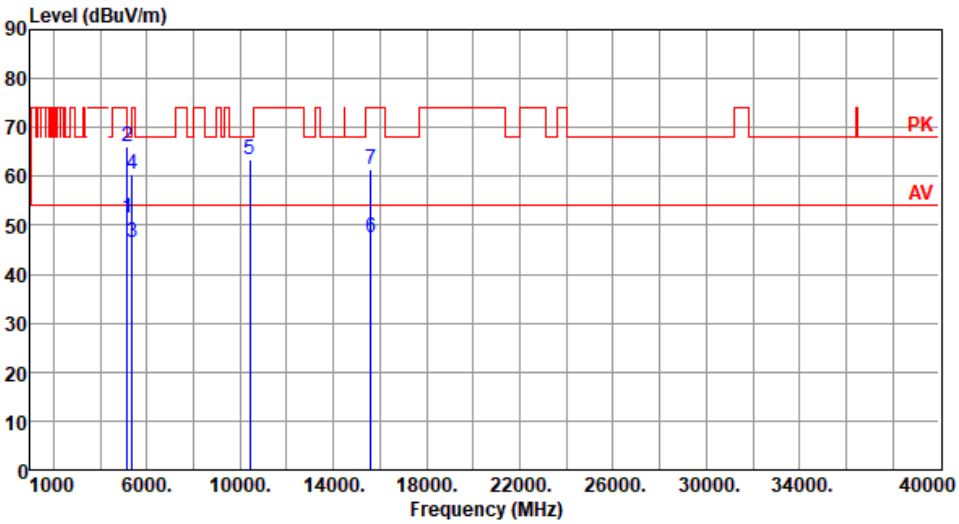


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	47.60	54.00	-6.40	43.22	4.38	Average	129	198
2	5150.00	63.23	74.00	-10.77	58.85	4.38	Peak	129	198
3	5350.00	46.30	54.00	-7.70	42.33	3.97	Average	129	198
4	5350.00	60.29	74.00	-13.71	56.32	3.97	Peak	129	198
5	10400.00	58.08	68.20	-10.12	43.59	14.49	Peak	119	207
6	15600.00	47.10	54.00	-6.90	32.58	14.52	Average	112	202
7	15600.00	59.95	74.00	-14.05	45.43	14.52	Peak	112	202

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	11a	Test Freq. (MHz)	5200
Polarization	Vertical		

Test By :Akun Chung Temperature(℃):21 Humidity(%):69

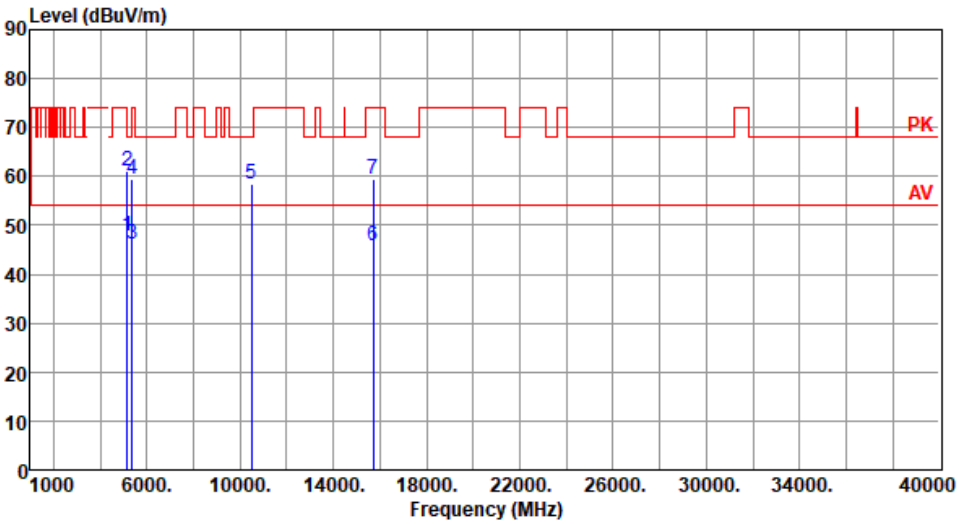


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	51.32	54.00	-2.68	46.94	4.38	Average	100	143
2	5150.00	66.23	74.00	-7.77	61.85	4.38	Peak	100	143
3	5350.00	46.63	54.00	-7.37	42.66	3.97	Average	100	143
4	5350.00	60.48	74.00	-13.52	56.51	3.97	Peak	100	143
5	10400.00	63.39	68.20	-4.81	48.90	14.49	Peak	139	349
6	15600.00	47.40	54.00	-6.60	32.88	14.52	Average	100	355
7	15600.00	61.39	74.00	-12.61	46.87	14.52	Peak	100	355

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	11a	Test Freq. (MHz)	5240
Polarization	Horizontal		

Test By :Akun Chung Temperature(℃):21 Humidity(%):69

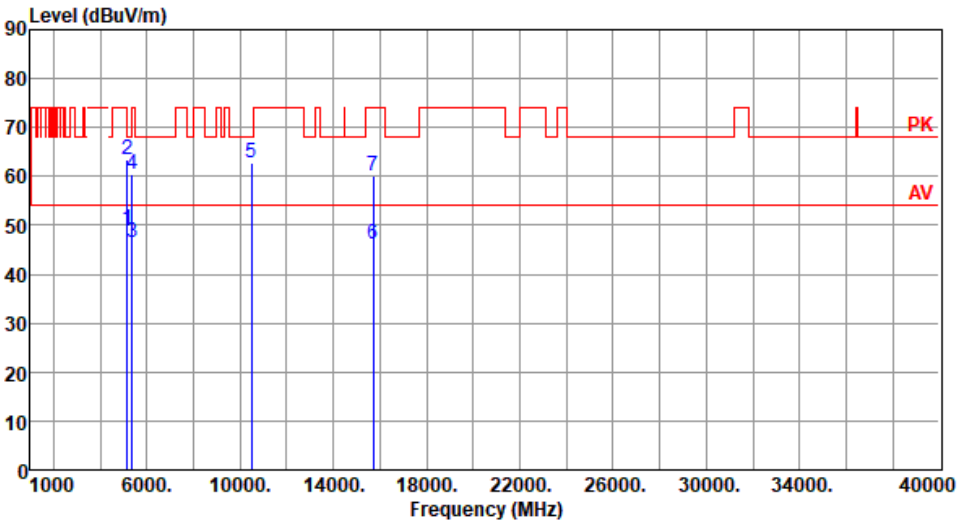


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	47.96	54.00	-6.04	43.58	4.38	Average	133	204
2	5150.00	61.23	74.00	-12.77	56.85	4.38	Peak	133	204
3	5350.00	46.22	54.00	-7.78	42.25	3.97	Average	133	204
4	5350.00	59.36	74.00	-14.64	55.39	3.97	Peak	133	204
5	10480.00	58.41	68.20	-9.79	43.86	14.55	Peak	118	205
6	15720.00	45.79	54.00	-8.21	31.43	14.36	Average	100	204
7	15720.00	59.51	74.00	-14.49	45.15	14.36	Peak	100	204

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	11a	Test Freq. (MHz)	5240
Polarization	Vertical		

Test By :Akun Chung Temperature(℃):21 Humidity(%):69

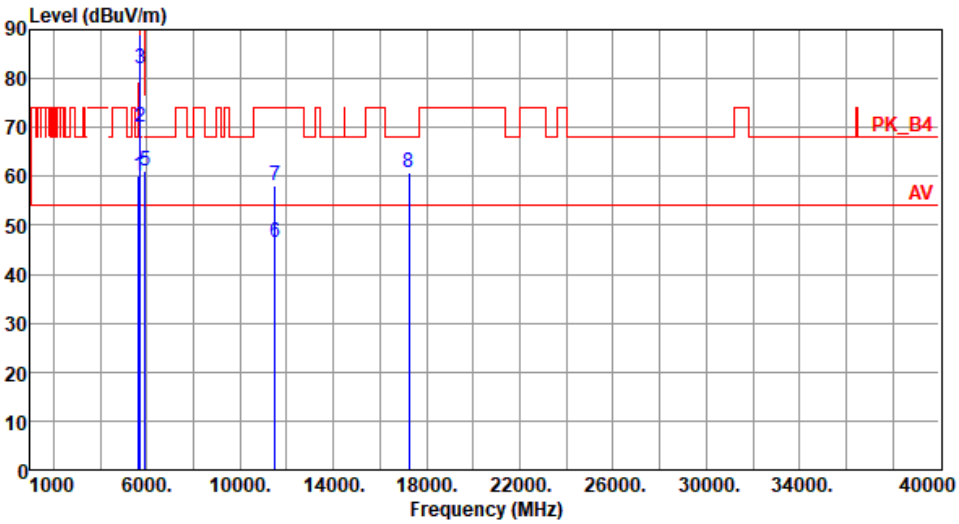


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	49.23	54.00	-4.77	44.85	4.38	Average	103	145
2	5150.00	63.33	74.00	-10.67	58.95	4.38	Peak	103	145
3	5350.00	46.55	54.00	-7.45	42.58	3.97	Average	108	145
4	5350.00	60.55	74.00	-13.45	56.58	3.97	Peak	108	145
5	10480.00	62.77	68.20	-5.43	48.22	14.55	Peak	142	341
6	15720.00	46.22	54.00	-7.78	31.86	14.36	Average	100	352
7	15720.00	60.12	74.00	-13.88	45.76	14.36	Peak	100	352

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	11a	Test Freq. (MHz)	5745
Polarization	Horizontal		

Test By :Akun Chung Temperature(℃):21 Humidity(%):69

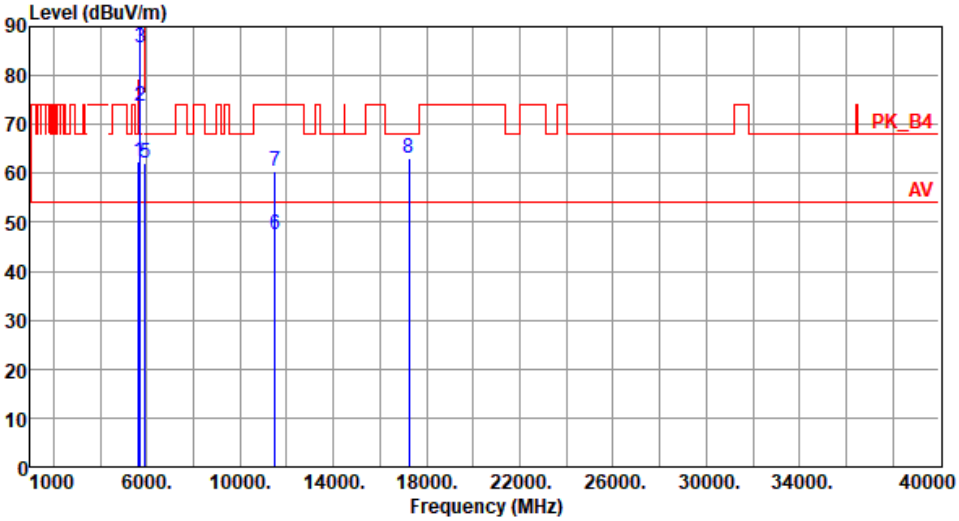


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	60.26	68.20	-7.94	55.81	4.45	Peak	100	207
2	5700.00	69.97	105.20	-35.23	65.28	4.69	Peak	100	207
3	5720.00	82.07	110.80	-28.73	77.28	4.79	Peak	100	207
4	5725.00	89.09	122.20	-33.11	84.28	4.81	Peak	100	207
5	5925.00	61.25	68.20	-6.95	55.87	5.38	Peak	100	207
6	11490.00	46.56	54.00	-7.44	31.80	14.76	Average	100	209
7	11490.00	58.04	74.00	-15.96	43.28	14.76	Peak	100	209
8	17235.00	60.83	68.20	-7.37	43.28	17.55	Peak	100	204

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	11a	Test Freq. (MHz)	5745
Polarization	Vertical		

Test By :Akun Chung Temperature(℃):21 Humidity(%):69

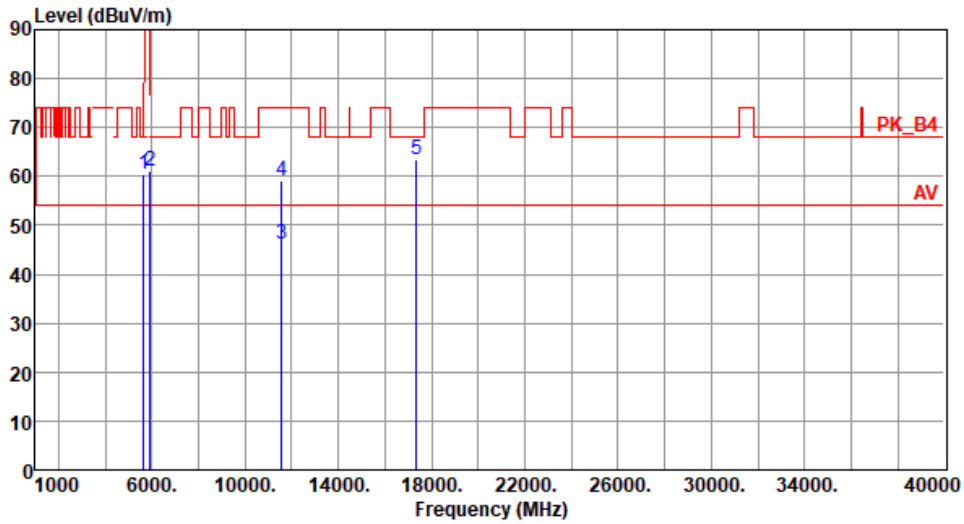


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	62.31	68.20	-5.89	57.86	4.45	Peak	141	137
2	5700.00	73.65	105.20	-31.55	68.96	4.69	Peak	141	137
3	5720.00	85.68	110.80	-25.12	80.89	4.79	Peak	141	137
4	5725.00	92.70	122.20	-29.50	87.89	4.81	Peak	141	137
5	5925.00	62.23	68.20	-5.97	56.85	5.38	Peak	141	137
6	11490.00	47.53	54.00	-6.47	32.77	14.76	Average	186	26
7	11490.00	60.54	74.00	-13.46	45.78	14.76	Peak	186	26
8	17235.00	63.23	68.20	-4.97	45.68	17.55	Peak	100	23

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	11a	Test Freq. (MHz)	5785
Polarization	Horizontal		

Test By :Akun Chung Temperature(℃):21 Humidity(%):69

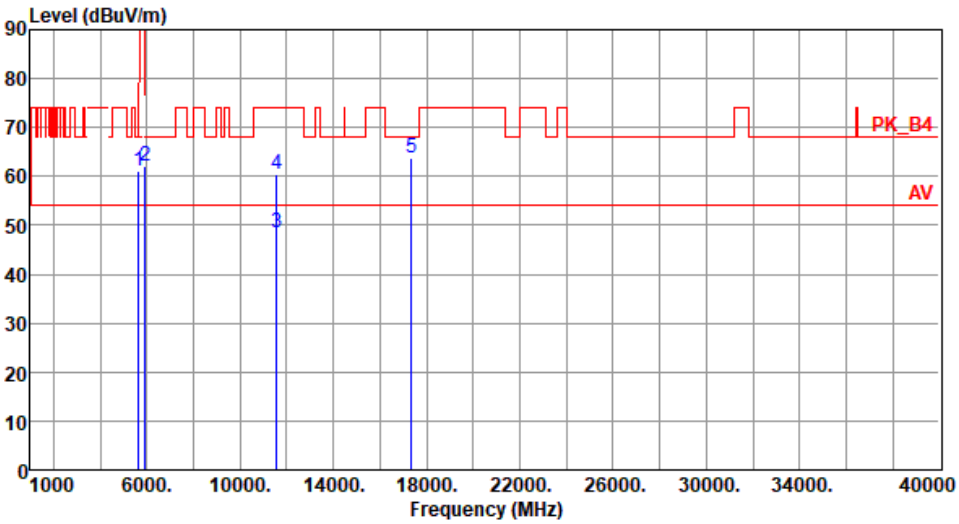


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	60.34	68.20	-7.86	55.89	4.45	Peak	100	207
2	5925.00	61.15	68.20	-7.05	55.77	5.38	Peak	100	207
3	11570.00	46.12	54.00	-7.88	31.44	14.68	Average	240	225
4	11570.00	59.15	74.00	-14.85	44.47	14.68	Peak	240	225
5	17355.00	63.58	68.20	-4.62	45.47	18.11	Peak	100	223

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	11a	Test Freq. (MHz)	5785
Polarization	Vertical		

Test By :Akun Chung Temperature(℃):21 Humidity(%):69

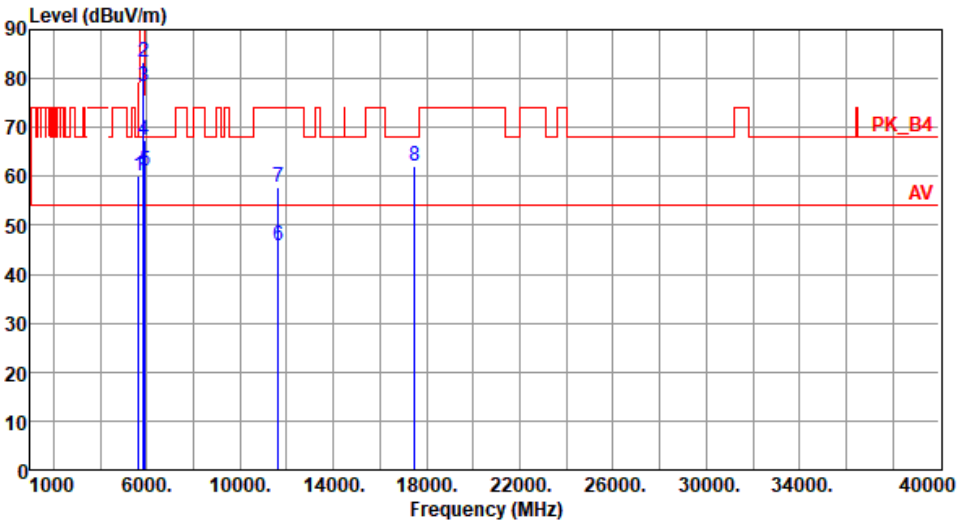


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	61.15	68.20	-7.05	56.70	4.45	Peak	104	129
2	5925.00	61.96	68.20	-6.24	56.58	5.38	Peak	104	129
3	11570.00	48.57	54.00	-5.43	33.89	14.68	Average	188	23
4	11570.00	60.57	74.00	-13.43	45.89	14.68	Peak	188	23
5	17355.00	63.86	68.20	-4.34	45.75	18.11	Peak	100	28

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	11a	Test Freq. (MHz)	5825
Polarization	Horizontal		

Test By :Akun Chung Temperature(℃):21 Humidity(%):69

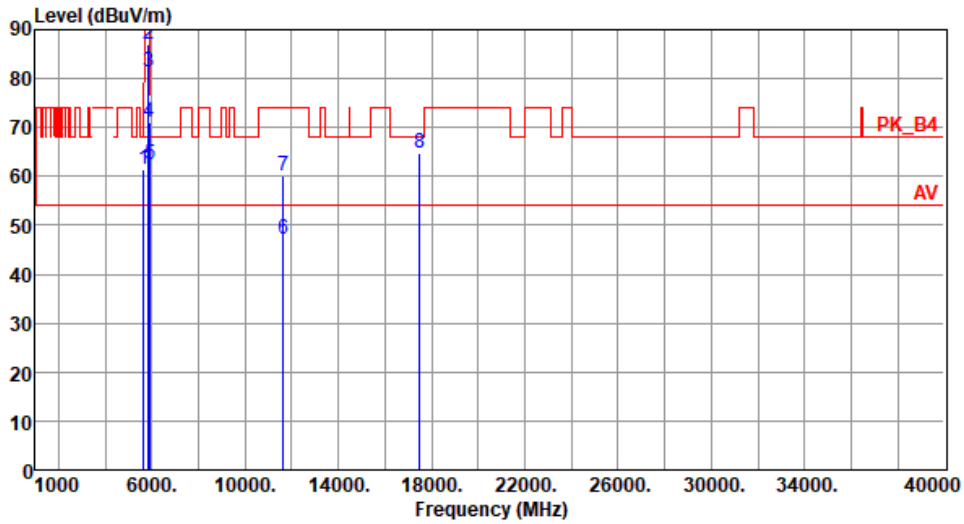


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	60.25	68.20	-7.95	55.80	4.45	Peak	100	206
2	5850.00	83.46	122.20	-38.74	78.28	5.18	Peak	100	206
3	5855.00	78.37	110.80	-32.43	73.18	5.19	Peak	100	206
4	5875.00	67.40	105.20	-37.80	62.12	5.28	Peak	100	206
5	5925.00	61.04	68.20	-7.16	55.66	5.38	Peak	100	206
6	11650.00	45.73	54.00	-8.27	31.28	14.45	Average	100	203
7	11650.00	57.68	74.00	-16.32	43.23	14.45	Peak	100	203
8	17475.00	62.08	68.20	-6.12	43.24	18.84	Peak	100	201

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	11a	Test Freq. (MHz)	5825
Polarization	Vertical		

Test By :Akun Chung Temperature(℃):21 Humidity(%):69



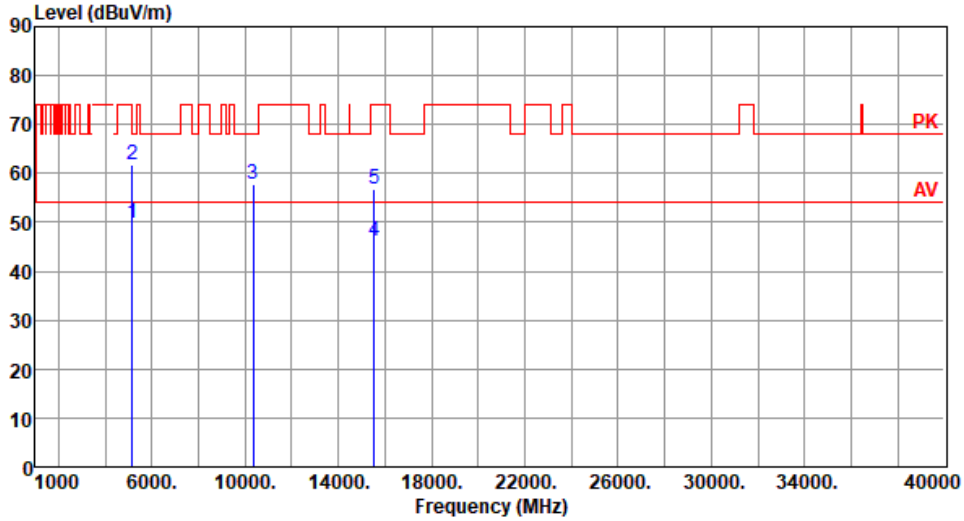
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	61.32	68.20	-6.88	56.87	4.45	Peak	102	125
2	5850.00	87.01	122.20	-35.19	81.83	5.18	Peak	102	125
3	5855.00	81.27	110.80	-29.53	76.08	5.19	Peak	102	125
4	5875.00	71.09	105.20	-34.11	65.81	5.28	Peak	102	125
5	5925.00	62.39	68.20	-5.81	57.01	5.38	Peak	102	125
6	11650.00	47.20	54.00	-6.80	32.75	14.45	Average	179	24
7	11650.00	60.21	74.00	-13.79	45.76	14.45	Peak	179	24
8	17475.00	64.64	68.20	-3.56	45.80	18.84	Peak	100	21

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

3.5.6 Transmitter Radiated Unwanted Emissions (Above 1GHz) for ax (HE20)

Modulation	ax (HE20)	Test Freq. (MHz)	5180
Polarization	Horizontal		

Test By :Akun Chung Temperature(°C):21 Humidity(%):69

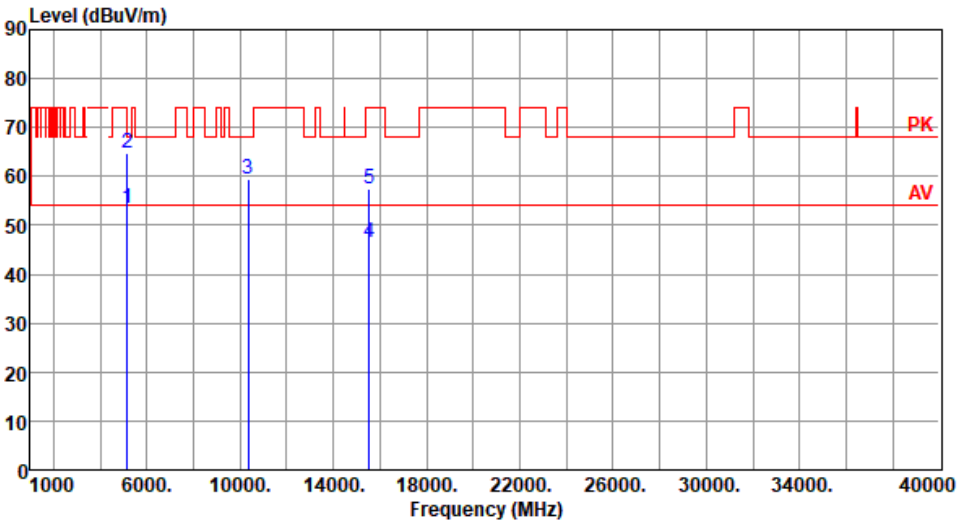


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	49.92	54.00	-4.08	45.54	4.38	Average	125	202
2	5150.00	61.63	74.00	-12.37	57.25	4.38	Peak	125	202
3	10360.00	57.90	68.20	-10.30	43.48	14.42	Peak	100	203
4	15540.00	46.07	54.00	-7.93	31.42	14.65	Average	100	209
5	15540.00	56.95	74.00	-17.05	42.30	14.65	Peak	100	209

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	ax (HE20)	Test Freq. (MHz)	5180
Polarization	Vertical		

Test By :Akun Chung Temperature(℃):21 Humidity(%):69

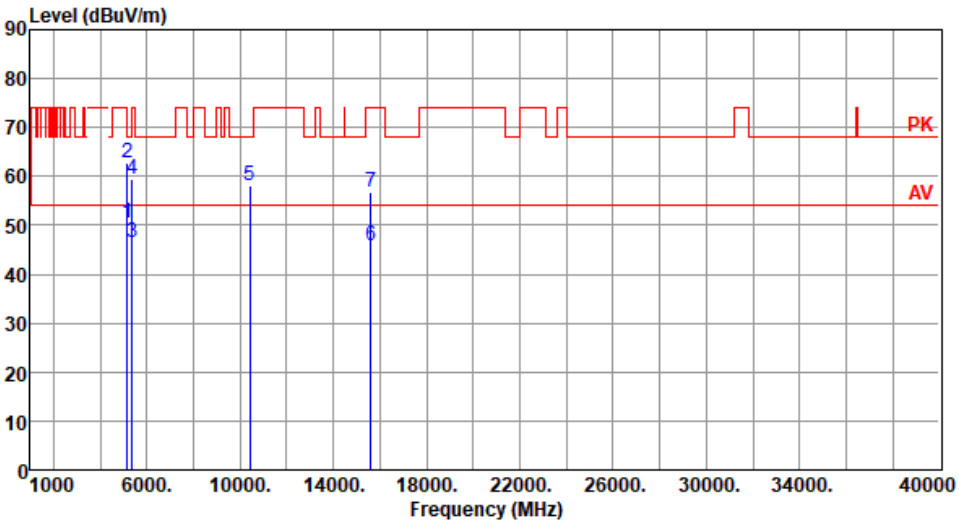


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	53.35	54.00	-0.65	48.97	4.38	Average	106	148
2	5150.00	64.84	74.00	-9.16	60.46	4.38	Peak	106	148
3	10360.00	59.31	68.20	-8.89	44.89	14.42	Peak	132	342
4	15540.00	46.51	54.00	-7.49	31.86	14.65	Average	100	344
5	15540.00	57.54	74.00	-16.46	42.89	14.65	Peak	100	344

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	ax (HE20)	Test Freq. (MHz)	5200
Polarization	Horizontal		

Test By :Akun Chung Temperature(℃):21 Humidity(%):69

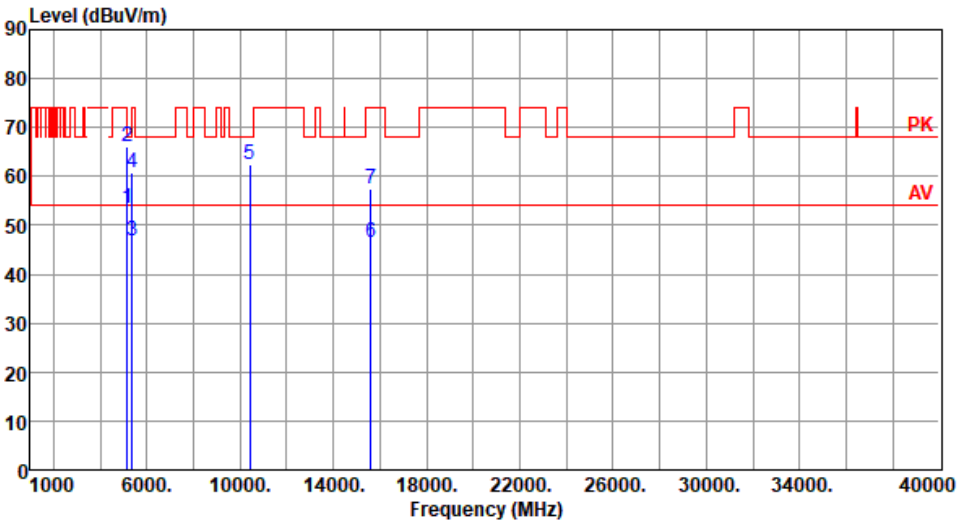


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	50.63	54.00	-3.37	46.25	4.38	Average	135	205
2	5150.00	62.89	74.00	-11.11	58.51	4.38	Peak	135	205
3	5350.00	46.42	54.00	-7.58	42.45	3.97	Average	135	205
4	5350.00	59.42	74.00	-14.58	55.45	3.97	Peak	135	205
5	10400.00	58.12	68.20	-10.08	43.63	14.49	Peak	118	201
6	15600.00	45.90	54.00	-8.10	31.38	14.52	Average	100	208
7	15600.00	56.95	74.00	-17.05	42.43	14.52	Peak	100	208

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	ax (HE20)	Test Freq. (MHz)	5200
Polarization	Vertical		

Test By :Akun Chung Temperature(℃):21 Humidity(%):69

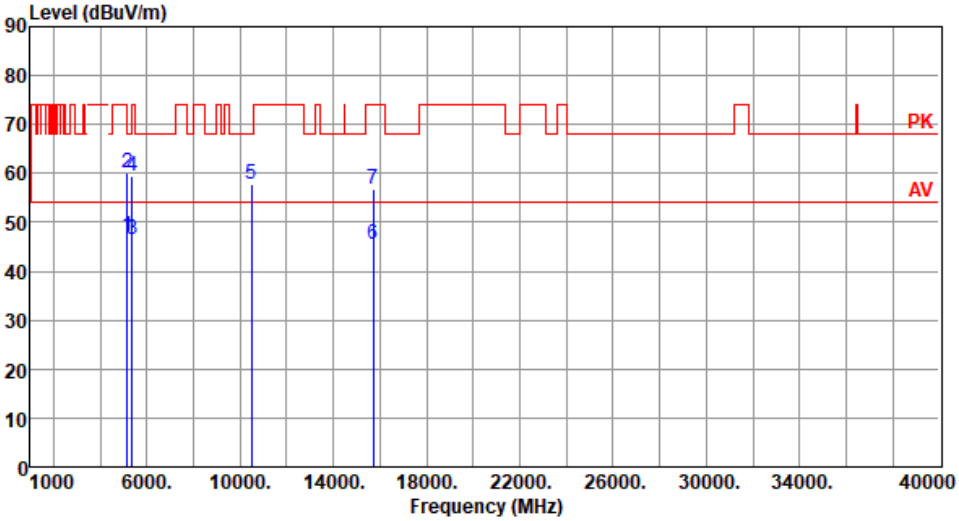


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	53.46	54.00	-0.54	49.08	4.38	Average	100	143
2	5150.00	66.08	74.00	-7.92	61.70	4.38	Peak	100	143
3	5350.00	46.86	54.00	-7.14	42.89	3.97	Average	100	143
4	5350.00	60.84	74.00	-13.16	56.87	3.97	Peak	100	143
5	10400.00	62.29	68.20	-5.91	47.80	14.49	Peak	128	348
6	15600.00	46.51	54.00	-7.49	31.99	14.52	Average	100	339
7	15600.00	57.41	74.00	-16.59	42.89	14.52	Peak	100	339

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	ax (HE20)	Test Freq. (MHz)	5240
Polarization	Horizontal		

Test By :Akun Chung Temperature(℃):21 Humidity(%):69

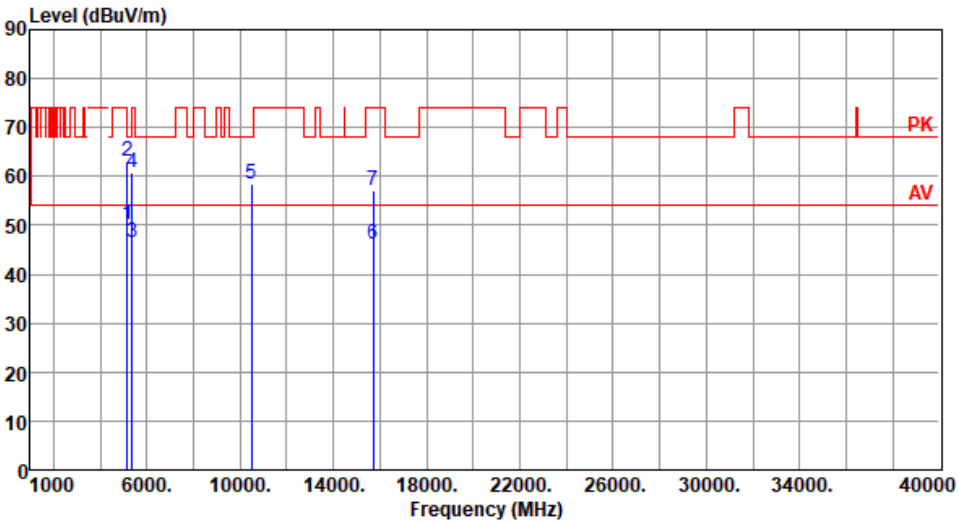


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	47.23	54.00	-6.77	42.85	4.38	Average	136	208
2	5150.00	60.25	74.00	-13.75	55.87	4.38	Peak	136	208
3	5350.00	46.39	54.00	-7.61	42.42	3.97	Average	136	208
4	5350.00	59.42	74.00	-14.58	55.45	3.97	Peak	136	208
5	10480.00	57.80	68.20	-10.40	43.25	14.55	Peak	115	204
6	15720.00	45.65	54.00	-8.35	31.29	14.36	Average	100	207
7	15720.00	56.82	74.00	-17.18	42.46	14.36	Peak	100	207

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	ax (HE20)	Test Freq. (MHz)	5240
Polarization	Vertical		

Test By :Akun Chung Temperature(℃):21 Humidity(%):69

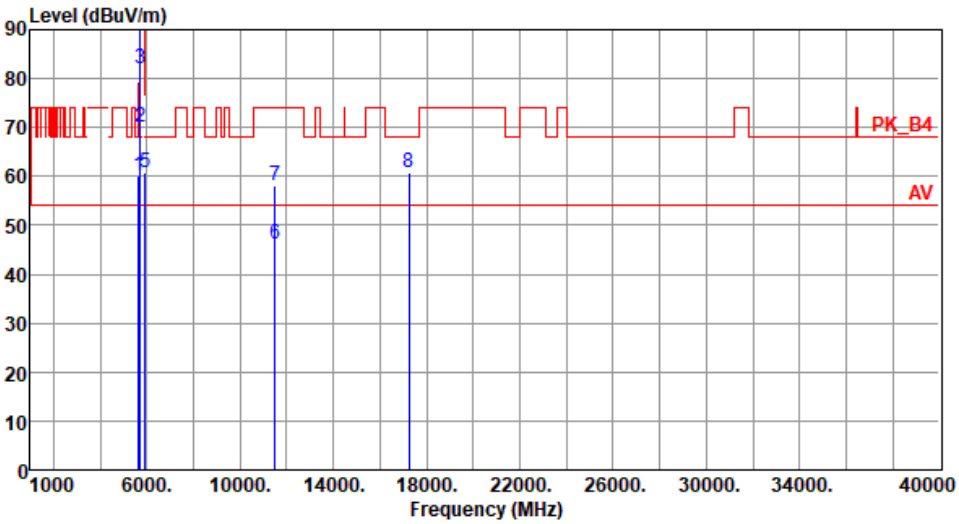


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	50.04	54.00	-3.96	45.66	4.38	Average	100	142
2	5150.00	63.15	74.00	-10.85	58.77	4.38	Peak	100	142
3	5350.00	46.65	54.00	-7.35	42.68	3.97	Average	100	142
4	5350.00	60.66	74.00	-13.34	56.69	3.97	Peak	100	142
5	10480.00	58.41	68.20	-9.79	43.86	14.55	Peak	132	348
6	15720.00	46.14	54.00	-7.86	31.78	14.36	Average	100	342
7	15720.00	57.20	74.00	-16.80	42.84	14.36	Peak	100	342

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	ax (HE20)	Test Freq. (MHz)	5745
Polarization	Horizontal		

Test By :Akun Chung Temperature(℃):21 Humidity(%):69

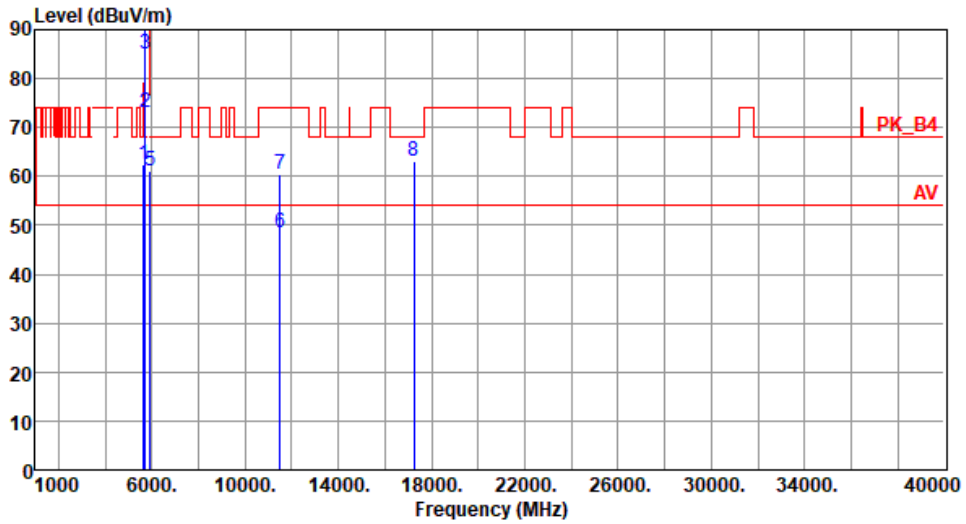


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	60.12	68.20	-8.08	55.67	4.45	Peak	100	208
2	5700.00	69.97	105.20	-35.23	65.28	4.69	Peak	100	208
3	5720.00	82.07	110.80	-28.73	77.28	4.79	Peak	100	208
4	5725.00	92.09	122.20	-30.11	87.28	4.81	Peak	100	208
5	5925.00	60.66	68.20	-7.54	55.28	5.38	Peak	100	208
6	11490.00	46.02	54.00	-7.98	31.26	14.76	Average	100	204
7	11490.00	58.04	74.00	-15.96	43.28	14.76	Peak	100	204
8	17235.00	60.72	68.20	-7.48	43.17	17.55	Peak	100	209

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	ax (HE20)	Test Freq. (MHz)	5745
Polarization	Vertical		

Test By :Akun Chung Temperature(℃):21 Humidity(%):69

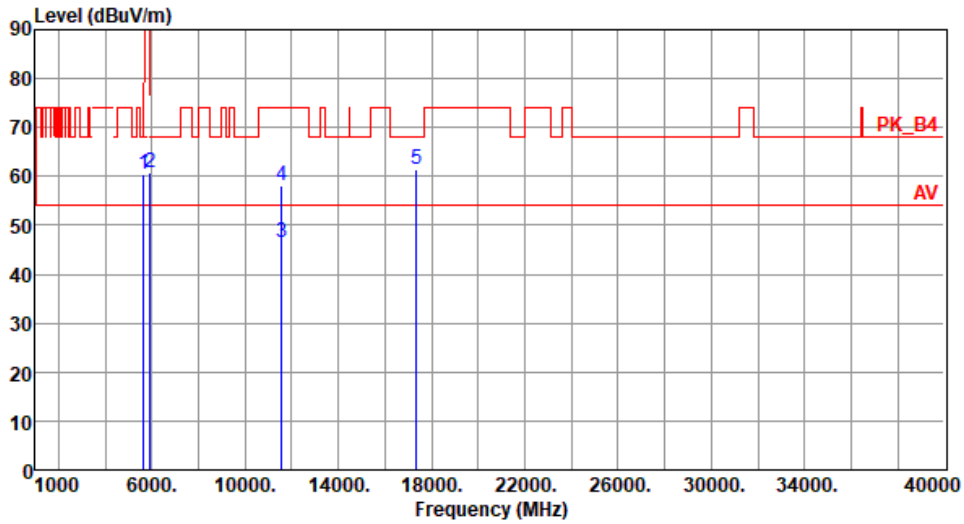


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	62.32	68.20	-5.88	57.87	4.45	Peak	151	132
2	5700.00	73.06	105.20	-32.14	68.37	4.69	Peak	151	132
3	5720.00	84.91	110.80	-25.89	80.12	4.79	Peak	151	132
4	5725.00	95.23	122.20	-26.97	90.42	4.81	Peak	151	132
5	5925.00	61.27	68.20	-6.93	55.89	5.38	Peak	151	132
6	11490.00	48.61	54.00	-5.39	33.85	14.76	Average	186	22
7	11490.00	60.59	74.00	-13.41	45.83	14.76	Peak	186	22
8	17235.00	63.18	68.20	-5.02	45.63	17.55	Peak	100	27

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	ax (HE20)	Test Freq. (MHz)	5785
Polarization	Horizontal		

Test By :Akun Chung Temperature(℃):21 Humidity(%):69

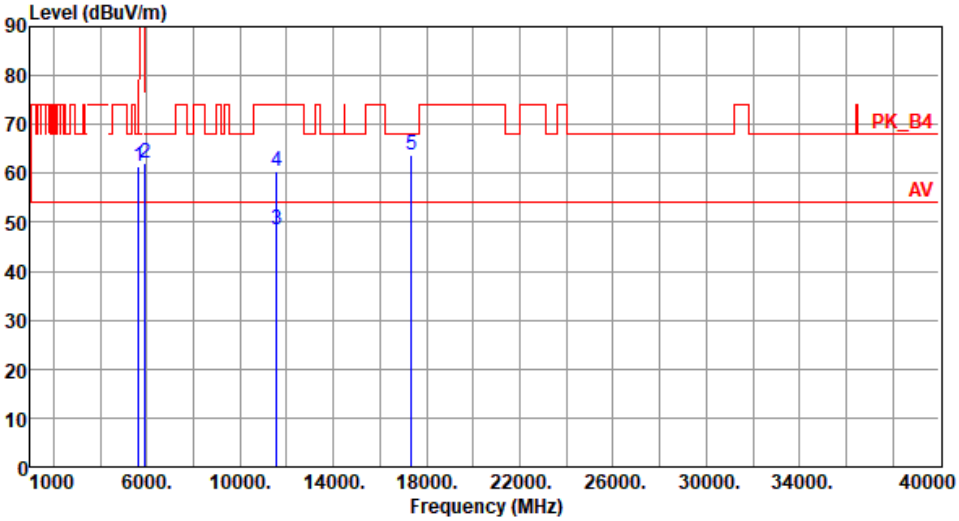


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	60.33	68.20	-7.87	55.88	4.45	Peak	100	207
2	5925.00	60.66	68.20	-7.54	55.28	5.38	Peak	100	207
3	11570.00	46.54	54.00	-7.46	31.86	14.68	Average	100	209
4	11570.00	57.97	74.00	-16.03	43.29	14.68	Peak	100	209
5	17355.00	61.39	68.20	-6.81	43.28	18.11	Peak	100	208

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	ax (HE20)	Test Freq. (MHz)	5785
Polarization	Vertical		

Test By :Akun Chung Temperature(℃):21 Humidity(%):69

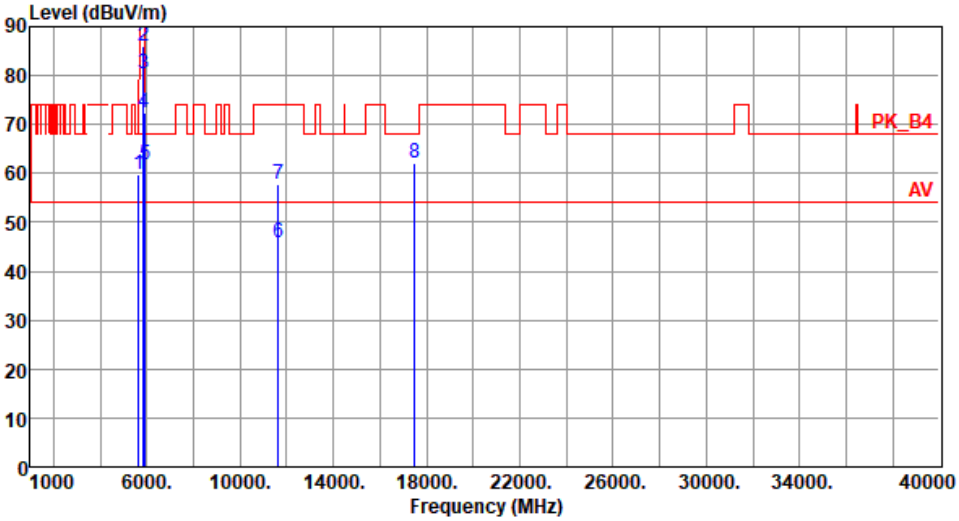


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	61.31	68.20	-6.89	56.86	4.45	Peak	101	128
2	5925.00	62.15	68.20	-6.05	56.77	5.38	Peak	101	128
3	11570.00	48.44	54.00	-5.56	33.76	14.68	Average	183	26
4	11570.00	60.43	74.00	-13.57	45.75	14.68	Peak	183	26
5	17355.00	63.74	68.20	-4.46	45.63	18.11	Peak	100	25

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	ax (HE20)	Test Freq. (MHz)	5825
Polarization	Horizontal		

Test By :Akun Chung Temperature(℃):21 Humidity(%):69

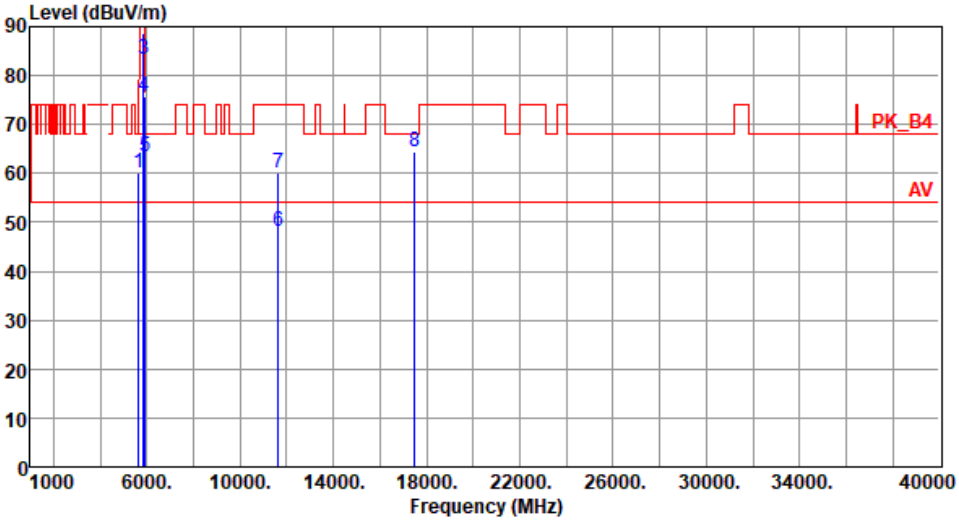


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	59.74	68.20	-8.46	55.29	4.45	Peak	100	209
2	5850.00	86.00	122.20	-36.20	80.82	5.18	Peak	100	209
3	5855.00	80.48	110.80	-30.32	75.29	5.19	Peak	100	209
4	5875.00	72.49	105.20	-32.71	67.21	5.28	Peak	100	209
5	5925.00	61.67	68.20	-6.53	56.29	5.38	Peak	100	209
6	11650.00	45.73	54.00	-8.27	31.28	14.45	Average	100	207
7	11650.00	57.73	74.00	-16.27	43.28	14.45	Peak	100	207
8	17475.00	62.13	68.20	-6.07	43.29	18.84	Peak	100	208

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	ax (HE20)	Test Freq. (MHz)	5825
Polarization	Vertical		

Test By :Akun Chung Temperature(℃):21 Humidity(%):69



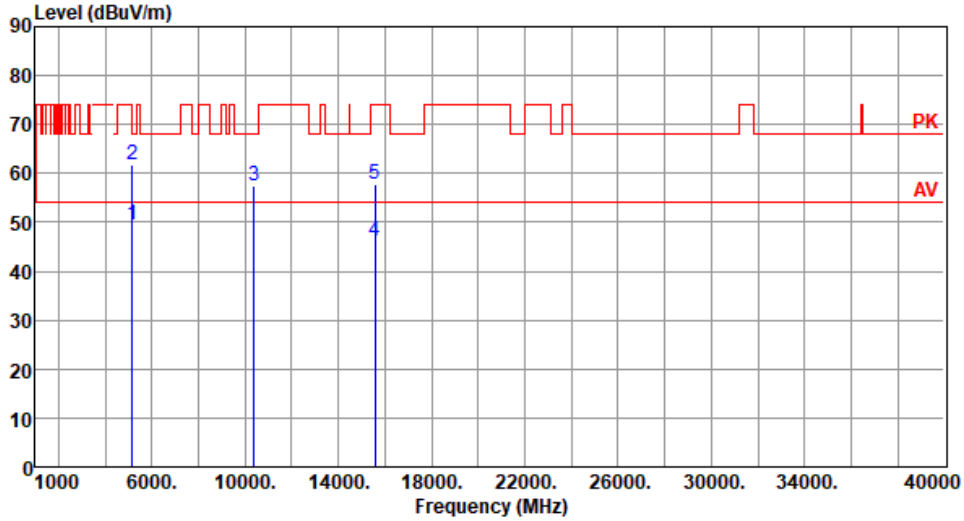
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	60.23	68.20	-7.97	55.78	4.45	Peak	102	126
2	5850.00	88.79	122.20	-33.41	83.61	5.18	Peak	102	126
3	5855.00	83.37	110.80	-27.43	78.18	5.19	Peak	102	126
4	5875.00	75.80	105.20	-29.40	70.52	5.28	Peak	102	126
5	5925.00	63.27	68.20	-4.93	57.89	5.38	Peak	102	126
6	11650.00	48.23	54.00	-5.77	33.78	14.45	Average	185	24
7	11650.00	60.19	74.00	-13.81	45.74	14.45	Peak	185	24
8	17475.00	64.50	68.20	-3.70	45.66	18.84	Peak	100	29

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

3.5.7 Transmitter Radiated Unwanted Emissions (Above 1GHz) for ax (HE40)

Modulation	ax (HE40)	Test Freq. (MHz)	5190
Polarization	Horizontal		

Test By :Akun Chung Temperature(°C):21 Humidity(%):69

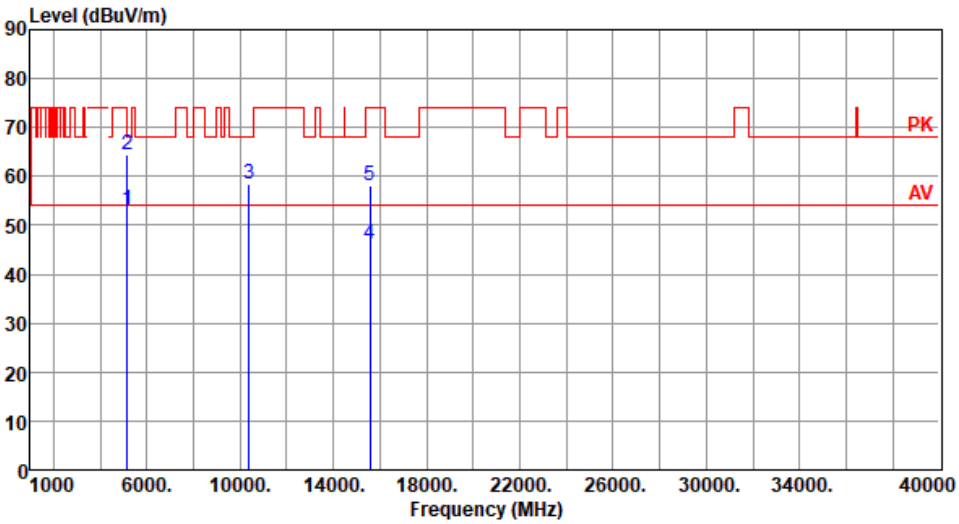


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	49.63	54.00	-4.37	45.25	4.38	Average	132	208
2	5150.00	61.64	74.00	-12.36	57.26	4.38	Peak	132	208
3	10380.00	57.29	68.20	-10.91	42.84	14.45	Peak	100	207
4	15570.00	46.01	54.00	-7.99	31.42	14.59	Average	100	209
5	15570.00	57.84	74.00	-16.16	43.25	14.59	Peak	100	209

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	ax (HE40)	Test Freq. (MHz)	5190
Polarization	Vertical		

Test By :Akun Chung Temperature(℃):21 Humidity(%):69

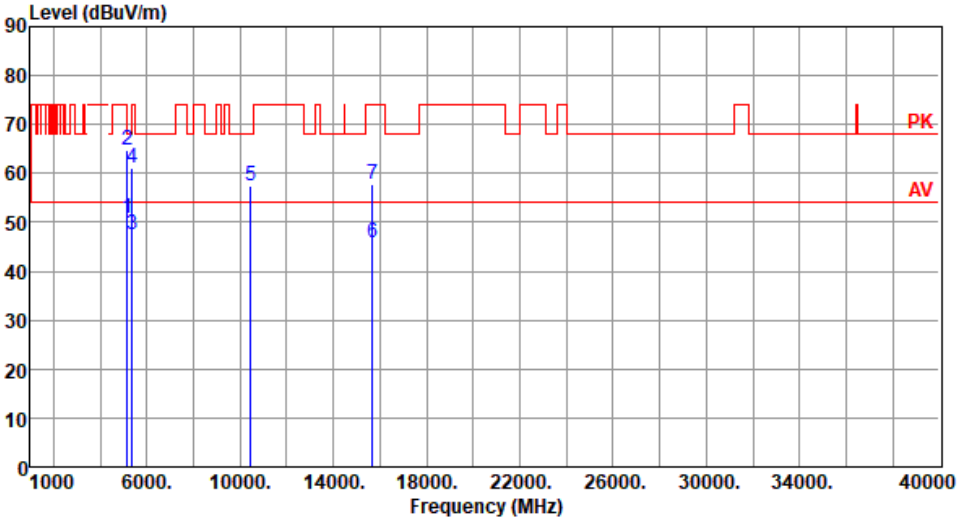


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	53.25	54.00	-0.75	48.87	4.38	Average	145	207
2	5150.00	64.54	74.00	-9.46	60.16	4.38	Peak	145	207
3	10380.00	58.29	68.20	-9.91	43.84	14.45	Peak	100	356
4	15570.00	46.30	54.00	-7.70	31.71	14.59	Average	100	348
5	15570.00	58.21	74.00	-15.79	43.62	14.59	Peak	100	348

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	ax (HE40)	Test Freq. (MHz)	5230
Polarization	Horizontal		

Test By :Akun Chung Temperature(℃):21 Humidity(%):69

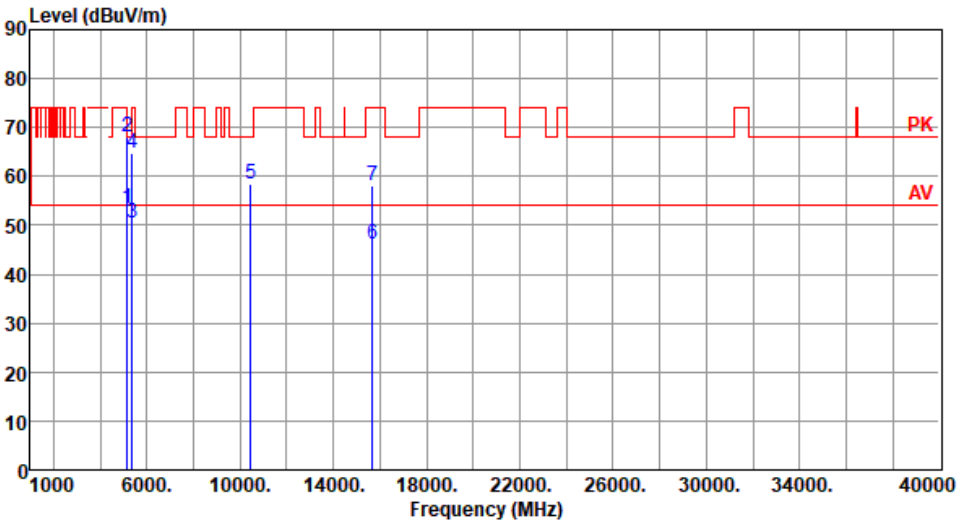


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	50.66	54.00	-3.34	46.28	4.38	Average	135	207
2	5150.00	64.64	74.00	-9.36	60.26	4.38	Peak	135	207
3	5350.00	47.55	54.00	-6.45	43.58	3.97	Average	135	207
4	5350.00	61.21	74.00	-12.79	57.24	3.97	Peak	135	207
5	10460.00	57.38	68.20	-10.82	42.84	14.54	Peak	100	203
6	15690.00	45.88	54.00	-8.12	31.44	14.44	Average	100	201
7	15690.00	57.69	74.00	-16.31	43.25	14.44	Peak	100	201

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	ax (HE40)	Test Freq. (MHz)	5230
Polarization	Vertical		

Test By :Akun Chung Temperature(℃):21 Humidity(%):69

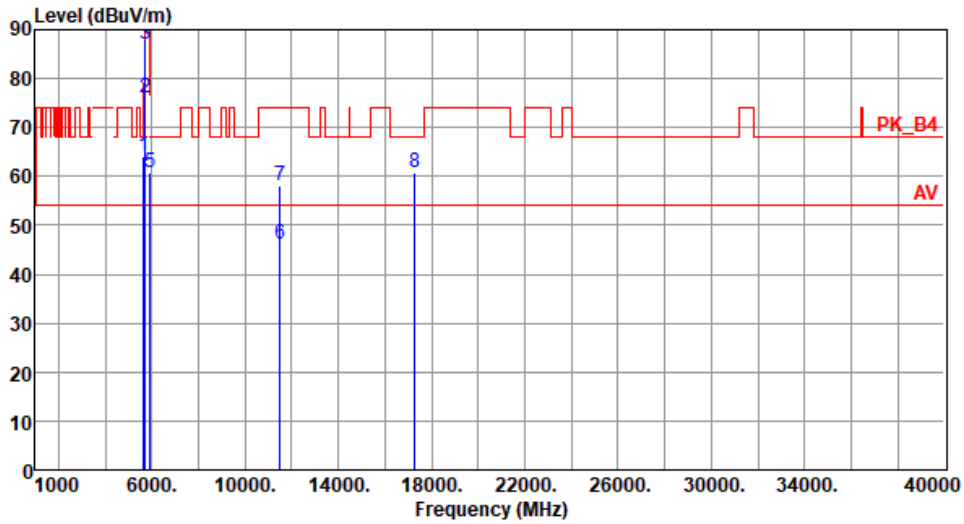


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	53.55	54.00	-0.45	49.17	4.38	Average	102	146
2	5150.00	68.24	74.00	-5.76	63.86	4.38	Peak	102	146
3	5350.00	50.60	54.00	-3.40	46.63	3.97	Average	108	151
4	5350.00	64.68	74.00	-9.32	60.71	3.97	Peak	108	151
5	10460.00	58.29	68.20	-9.91	43.75	14.54	Peak	100	348
6	15690.00	46.15	54.00	-7.85	31.71	14.44	Average	100	345
7	15690.00	58.14	74.00	-15.86	43.70	14.44	Peak	100	345

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	ax (HE40)	Test Freq. (MHz)	5755
Polarization	Horizontal		

Test By :Roger Lu Temperature(℃):21 Humidity(%):69

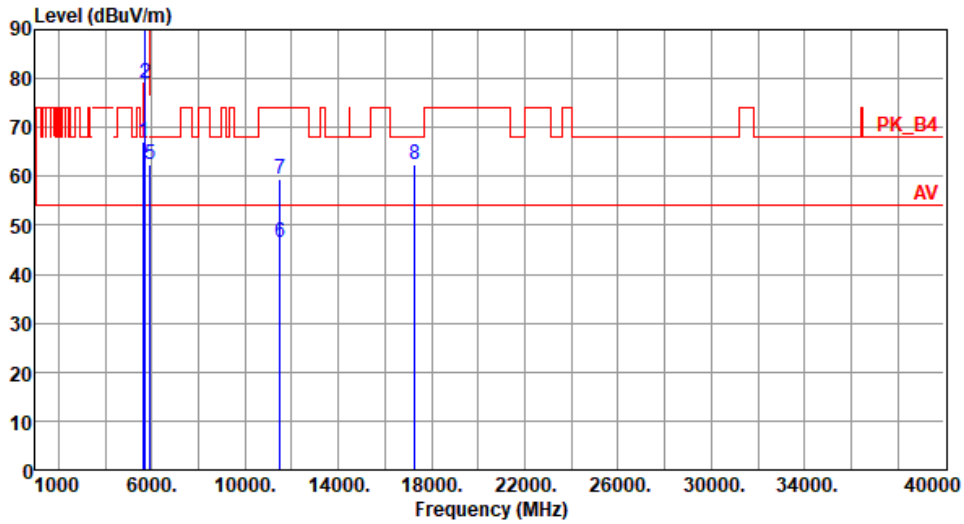


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	64.16	68.20	-4.04	59.71	4.45	Peak	100	208
2	5700.00	75.97	105.20	-29.23	71.28	4.69	Peak	100	208
3	5720.00	87.06	110.80	-23.74	82.27	4.79	Peak	100	208
4	5725.00	88.09	122.20	-34.11	83.28	4.81	Peak	100	208
5	5925.00	60.63	68.20	-7.57	55.25	5.38	Peak	100	208
6	11510.00	46.02	54.00	-7.98	31.28	14.74	Average	100	207
7	11510.00	58.02	74.00	-15.98	43.28	14.74	Peak	100	207
8	17265.00	60.92	68.20	-7.28	43.28	17.64	Peak	100	203

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	ax (HE40)	Test Freq. (MHz)	5755
Polarization	Vertical		

Test By :Roger Lu Temperature(℃):21 Humidity(%):69

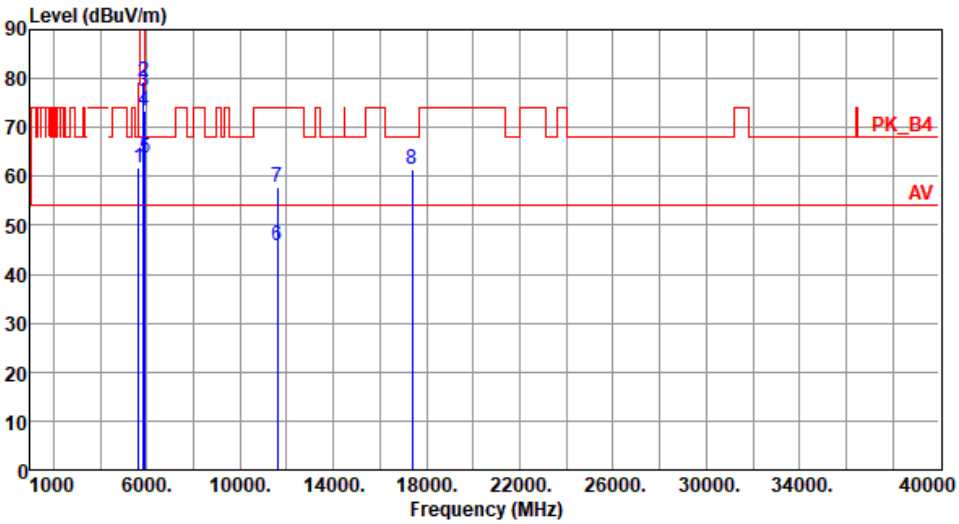


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	67.21	68.20	-0.99	62.76	4.45	Peak	149	144
2	5700.00	78.94	105.20	-26.26	74.25	4.69	Peak	149	144
3	5720.00	90.21	110.80	-20.59	85.42	4.79	Peak	149	144
4	5725.00	91.19	122.20	-31.01	86.38	4.81	Peak	149	144
5	5925.00	62.27	68.20	-5.93	56.89	5.38	Peak	149	144
6	11510.00	46.44	54.00	-7.56	31.70	14.74	Average	186	27
7	11510.00	59.50	74.00	-14.50	44.76	14.74	Peak	186	27
8	17265.00	62.32	68.20	-5.88	44.68	17.64	Peak	100	28

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	ax (HE40)	Test Freq. (MHz)	5795
Polarization	Horizontal		

Test By :Akun Chung Temperature(℃):21 Humidity(%):69

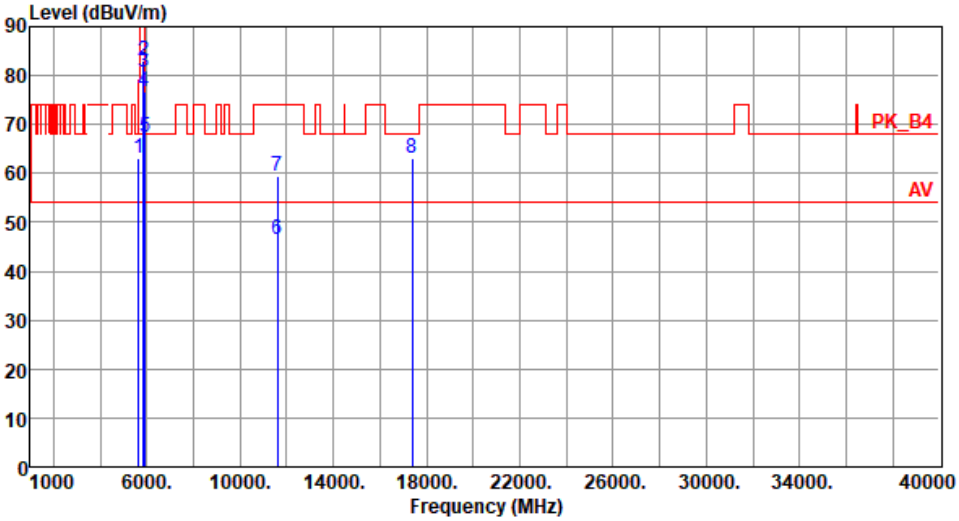


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	61.74	68.20	-6.46	57.29	4.45	Peak	100	211
2	5850.00	79.46	122.20	-42.74	74.28	5.18	Peak	100	211
3	5855.00	77.48	110.80	-33.32	72.29	5.19	Peak	100	211
4	5875.00	73.49	105.20	-31.71	68.21	5.28	Peak	100	211
5	5925.00	63.66	68.20	-4.54	58.28	5.38	Peak	100	211
6	11590.00	45.94	54.00	-8.06	31.28	14.66	Average	100	206
7	11590.00	57.92	74.00	-16.08	43.26	14.66	Peak	100	206
8	17385.00	61.59	68.20	-6.61	43.28	18.31	Peak	100	209

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	ax (HE40)	Test Freq. (MHz)	5795
Polarization	Vertical		

Test By :Akun Chung Temperature(℃):21 Humidity(%):69



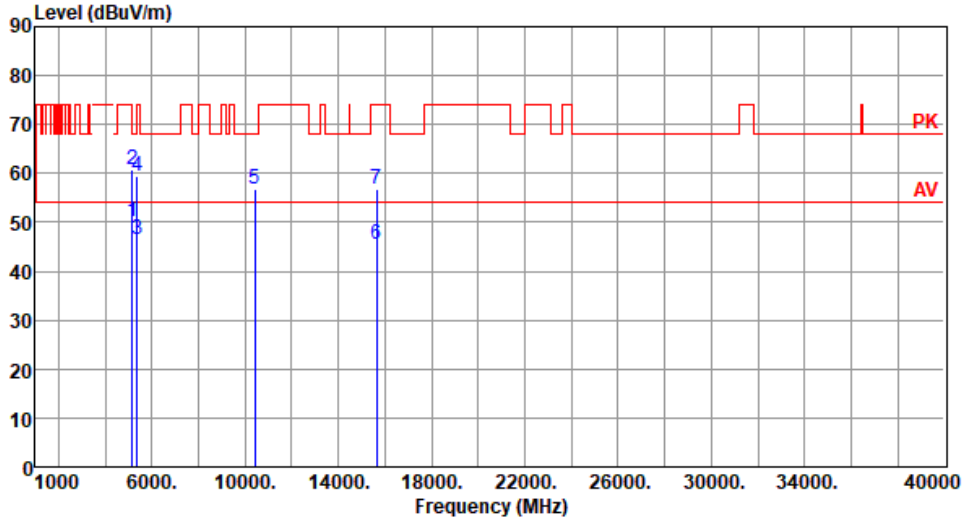
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	62.96	68.20	-5.24	58.51	4.45	Peak	116	117
2	5850.00	82.92	122.20	-39.28	77.74	5.18	Peak	116	117
3	5855.00	80.59	110.80	-30.21	75.40	5.19	Peak	116	117
4	5875.00	76.66	105.20	-28.54	71.38	5.28	Peak	116	117
5	5925.00	67.29	68.20	-0.91	61.91	5.38	Peak	116	117
6	11590.00	46.42	54.00	-7.58	31.76	14.66	Average	184	24
7	11590.00	59.53	74.00	-14.47	44.87	14.66	Peak	184	24
8	17385.00	63.16	68.20	-5.04	44.85	18.31	Peak	184	24

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

3.5.8 Transmitter Radiated Unwanted Emissions (Above 1GHz) for ax (HE80)

Modulation	ax (HE80)	Test Freq. (MHz)	5210
Polarization	Horizontal		

Test By :Akun Chung Temperature(°C):21 Humidity(%):69

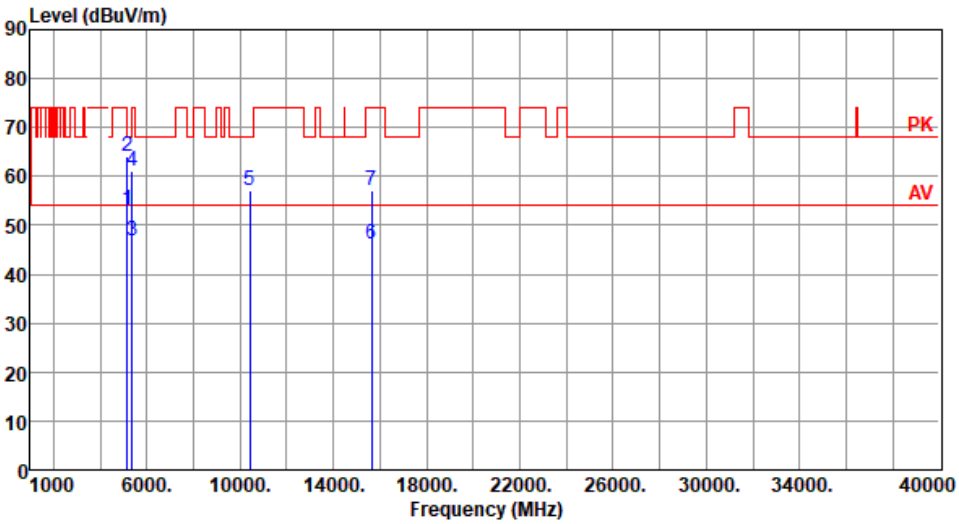


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	50.26	54.00	-3.74	45.88	4.38	Average	229	202
2	5150.00	60.91	74.00	-13.09	56.53	4.38	Peak	229	202
3	5350.00	46.44	54.00	-7.56	42.47	3.97	Average	229	202
4	5350.00	59.45	74.00	-14.55	55.48	3.97	Peak	229	202
5	10420.00	56.69	68.20	-11.51	42.19	14.50	Peak	100	208
6	15630.00	45.64	54.00	-8.36	31.14	14.50	Average	100	209
7	15630.00	56.69	74.00	-17.31	42.19	14.50	Peak	100	209

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	ax (HE80)	Test Freq. (MHz)	5210
Polarization	Vertical		

Test By :Akun Chung Temperature(℃):21 Humidity(%):69

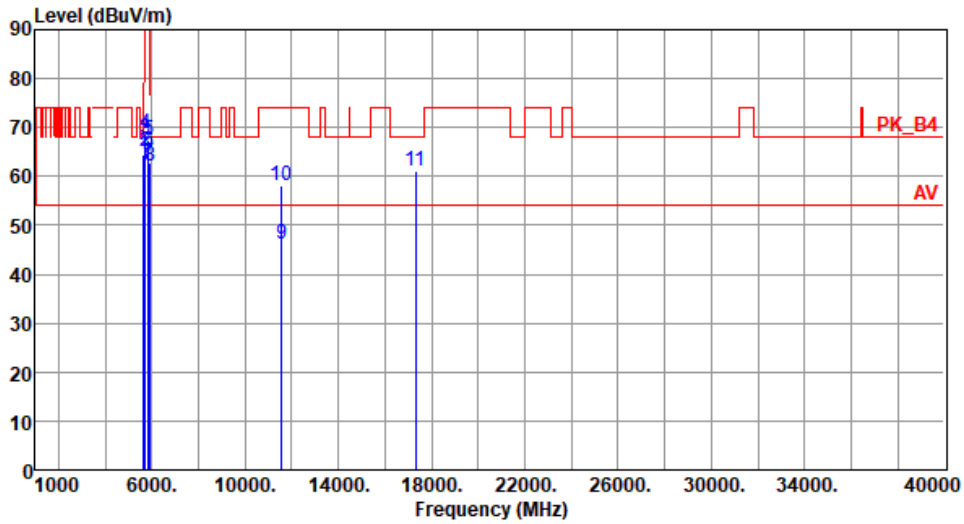


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	53.06	54.00	-0.94	48.68	4.38	Average	148	145
2	5150.00	63.95	74.00	-10.05	59.57	4.38	Peak	148	145
3	5350.00	46.84	54.00	-7.16	42.87	3.97	Average	148	145
4	5350.00	60.95	74.00	-13.05	56.98	3.97	Peak	148	145
5	10420.00	57.20	68.20	-11.00	42.70	14.50	Peak	100	346
6	15630.00	46.15	54.00	-7.85	31.65	14.50	Average	100	349
7	15630.00	57.16	74.00	-16.84	42.66	14.50	Peak	100	349

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	ax (HE80)	Test Freq. (MHz)	5775
Polarization	Horizontal		

Test By :Akun Chung Temperature(℃):21 Humidity(%):69

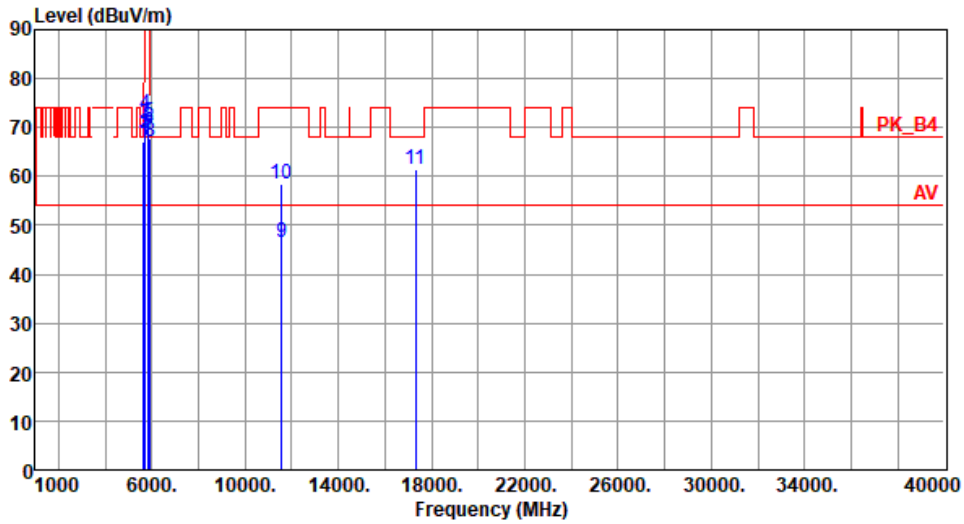


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	64.47	68.20	-3.73	60.02	4.45	Peak	100	159
2	5700.00	64.97	105.20	-40.23	60.28	4.69	Peak	100	159
3	5720.00	67.68	110.80	-43.12	62.89	4.79	Peak	100	159
4	5725.00	68.58	122.20	-53.62	63.77	4.81	Peak	100	159
5	5850.00	67.35	122.20	-54.85	62.17	5.18	Peak	100	159
6	5855.00	65.09	110.80	-45.71	59.90	5.19	Peak	100	159
7	5875.00	62.86	105.20	-42.34	57.58	5.28	Peak	100	159
8	5925.00	62.26	68.20	-5.94	56.88	5.38	Peak	100	159
9	11550.00	46.09	54.00	-7.91	31.39	14.70	Average	100	209
10	11550.00	57.98	74.00	-16.02	43.28	14.70	Peak	100	209
11	17325.00	61.09	68.20	-7.11	43.19	17.90	Peak	100	207

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	ax (HE80)	Test Freq. (MHz)	5775
Polarization	Vertical		

Test By :Akun Chung Temperature(℃):21 Humidity(%):69



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	67.21	68.20	-0.99	62.76	4.45	Peak	102	125
2	5700.00	68.82	105.20	-36.38	64.13	4.69	Peak	102	125
3	5720.00	70.68	110.80	-40.12	65.89	4.79	Peak	102	125
4	5725.00	72.59	122.20	-49.61	67.78	4.81	Peak	102	125
5	5850.00	70.93	122.20	-51.27	65.75	5.18	Peak	102	125
6	5855.00	70.01	110.80	-40.79	64.82	5.19	Peak	102	125
7	5875.00	67.73	105.20	-37.47	62.45	5.28	Peak	102	125
8	5925.00	67.06	68.20	-1.14	61.68	5.38	Peak	102	125
9	11550.00	46.39	54.00	-7.61	31.69	14.70	Average	100	22
10	11550.00	58.38	74.00	-15.62	43.68	14.70	Peak	100	22
11	17325.00	61.56	68.20	-6.64	43.66	17.90	Peak	100	26

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

3.6 Frequency Stability

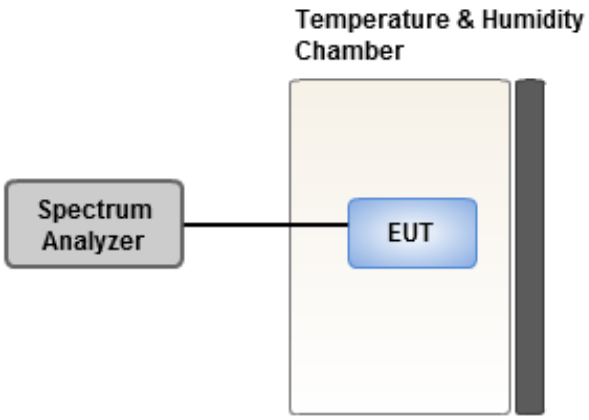
3.6.1 Limit of Frequency Stability

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

3.6.2 Test Procedures

1. The EUT is installed in an environment test chamber with external power source.
2. Set the chamber to operate at 20 centigrade and external power source to output at nominal voltage of EUT.
3. A sufficient stabilization period at each temperature is used prior to each frequency measurement.
4. When temperature is stabled, measure the frequency stability.
5. The test shall be performed under normal and extreme condition for temperature and voltage.

3.6.3 Test Setup



3.6.4 Test Result of Frequency Stability

Ambient Condition	20-24°C / 64-66%	Tested By	Aska Huang

Frequency: 5200 MHz	Frequency Drift (ppm)			
Temperature (°C)	0 minute	2 minutes	5 minutes	10 minutes
T20°CVmax	-1.17	-1.04	-1.69	-1.47
T20°CVmin	-0.78	-0.77	-0.72	-0.62
T50°CVnom	-7.94	-7.53	-7.61	-7.73
T40°CVnom	-6.96	-7.26	-6.59	-7.08
T30°CVnom	-2.94	-2.93	-3.14	-2.49
T20°CVnom	-0.89	-0.47	-0.16	-0.96
T10°CVnom	-1.03	-0.59	-0.20	-0.66
T0°CVnom	2.65	2.84	3.16	2.74
T-10°CVnom	5.05	5.30	5.74	4.70
T-20°CVnom	9.59	10.03	10.02	9.40
T-30°CVnom	13.11	13.66	13.42	13.33
Vnom [V]: 120		Vmax [V]: 138		Vmin [V]: 102
Tnom [°C]: 20		Tmax [°C]: 50		Tmin [°C]: -30

Frequency: 5785 MHz	Frequency Drift (ppm)			
Temperature (°C)	0 minute	2 minutes	5 minutes	10 minutes
T20°CVmax	-1.02	-1.15	-1.20	-0.93
T20°CVmin	-0.34	-0.13	-0.73	-0.49
T50°CVnom	-6.84	-6.81	-6.62	-6.67
T40°CVnom	-6.25	-5.59	-6.06	-5.96
T30°CVnom	-2.34	-1.59	-2.13	-2.38
T20°CVnom	-0.71	-0.78	-0.81	-0.89
T10°CVnom	-0.80	-1.05	-0.49	-0.38
T0°CVnom	2.76	3.14	2.71	3.09
T-10°CVnom	4.35	4.59	4.30	4.35
T-20°CVnom	9.06	9.24	9.56	9.19
T-30°CVnom	12.60	13.01	12.62	12.45
Vnom [V]: 120		Vmax [V]: 138		Vmin [V]: 102
Tnom [°C]: 20		Tmax [°C]: 50		Tmin [°C]: -30

4 Test laboratory information

Established in 2012, ICC provides foremost EMC & RF Testing and advisory consultation services by our skilled engineers and technicians. Our services employ a wide variety of advanced edge test equipment and one of the widest certification extents in the business.

International Certification Corp (EMC and Wireless Communication Laboratory), it is our definitive objective is to institute long term, trust-based associations with our clients. The expectation we set up with our clients is based on outstanding service, practical expertise and devotion to a certified value structure. Our passion is to grant our clients with best EMC / RF services by oriented knowledgeable and accommodating staff.

Our Test sites are located at Linkou District and Kwei Shan District. Location map can be found on our website http://www.icertifi.com.tw.

Linkou	**Kwei Shan**	**Kwei Shan Site II**
Tel: 886-2-2601-1640	Tel: 886-3-271-8666	Tel: 886-3-271-8640
No. 30-2, Ding Fwu Tsuen, Lin Kou District, New Taipei City, Taiwan, R.O.C.	No. 3-1, Lane 6, Wen San 3rd St., Kwei Shan District, Tao Yuan City 333, Taiwan, R.O.C.	No. 14-1, Lane 19, Wen San 3rd St., Kwei Shan District, Tao Yuan City 333, Taiwan, R.O.C.

If you have any suggestion, please feel free to contact us as below information.

Tel: 886-3-271-8666
Fax: 886-3-318-0155
Email: ICC_Service@icertifi.com.tw

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